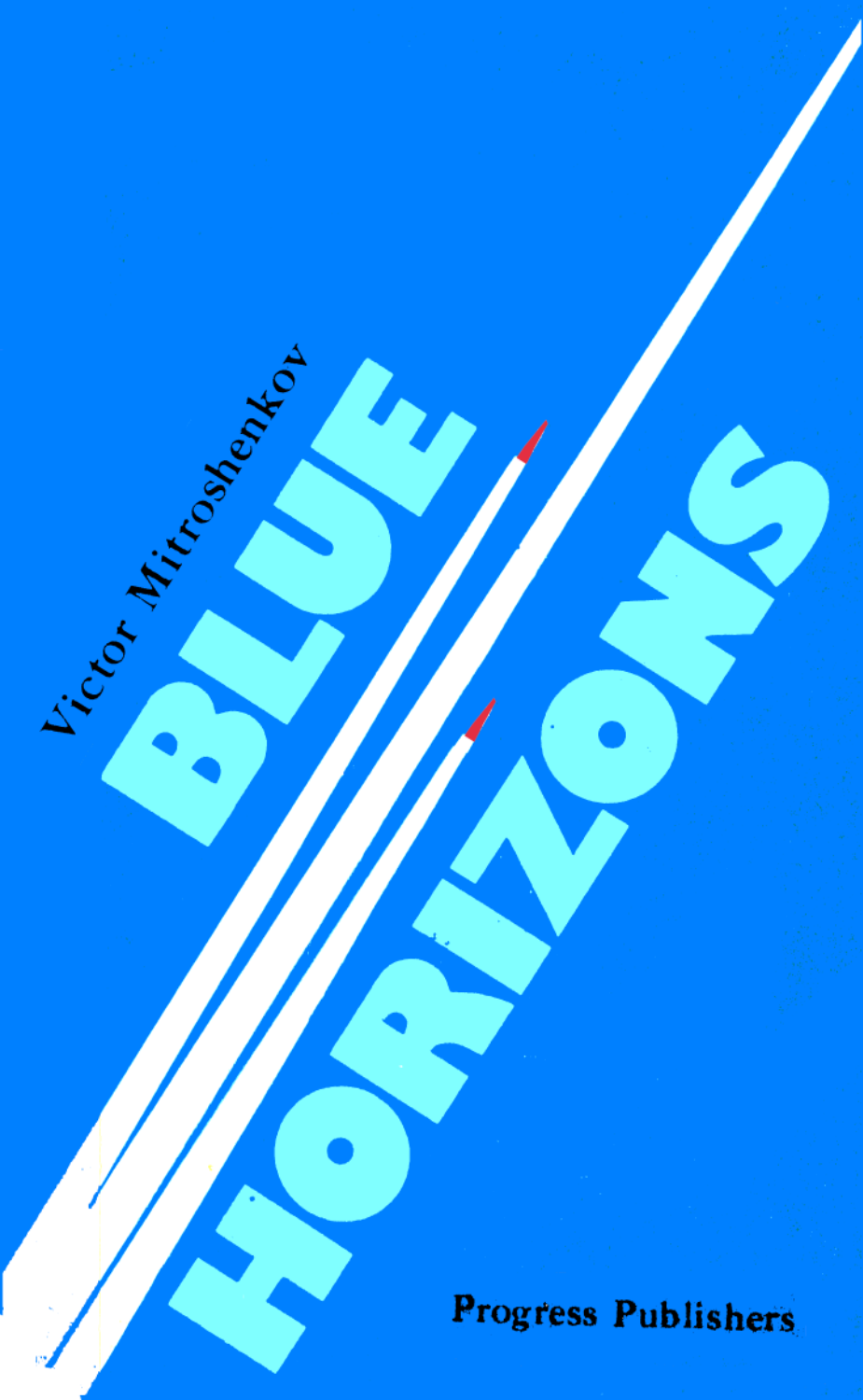
Victor Mitroshenkov

BLUE HORIZONS



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Victor Mitroshenkov

BLUE HORIZONS

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Foreword

Conquerors of the Sky

The heroes of Victor Mitroshenkov's book *Blue Horizons* are pilots and astronauts, famous and little known people, who have performed many heroic deeds, and whose lives reflect a whole era, our age, the life of not one but several generations in the 20th century. The book has a single theme. It follows, as it were, the development of aviation through the various stages: from aviation to outer space, from the implementation of the national space programme to the international Apollo-Soyuz programme.

Literature about outer space has existed for several centuries. For a long time the people dreamed of taking a bird's eye view of our planet and fathoming its mysteries. This dream gave birth to science fiction, folk tales, myths and legends.

The Greeks created the myth of Icarus and his winged flight. Firdousi's imagination sent the intrepid Tajiks off to the moon. Dumas, Bogdanov, Lem, Clarke and Bradbury settled the Solar Galaxy with earthmen and contemplated other more remote constellations.

The early explorers did not have spaceships, their imagination did not stretch that far: they flew on griffins, swans and cannon-balls.

The Renaissance witnessed great technical progress. Far-reaching changes also took place in man's dream of air and galactic flight.

In the 17th century Cyrano de Bergerac wrote his *Histoire Comique des Etats et Empires de la Lune*. Both the Moon and Venus were proposed as objects of scientific research by writers.

The great Soviet scientist Konstantin Tsiolkovsky wrote:

"...Mankind will not remain on the Earth forever, but in pursuit of light and space will first advance timidly beyond the limits of the atmosphere, and then conquer the whole of space around the sun."

Fridrikh Tsander, Martin Caidin, Sergei Korolev, Hermann Oberth, Robert Goddard, Anatoly Blagonravov, Robert Esnault-Peltrie, Alla Manevich and Vladimir Artyomov laid the practical foundations for international cooperation in space research.

The nearer we get to outer space, the further we find ourselves from the day when the planet Earth first uttered the name of Yuri Gagarin in delighted admiration.

In the future people's enquiring minds will turn not only towards the secrets of outer space, the new tomorrow, but also towards the past, our yesterday, the legends and history of how the earthmen's journey to the heights of outer space began. This history will grow and accumulate gradually as space yields up its secrets. Chroniclers always appear after the events which they record. It is quite possible that the further conquest of outer space will become a routine matter—and this is already taking place before our eyes. The romantic aura of space professions will dissolve, but people will always be interested in everything connected with the first steps of the pioneers of outer space: the dreamers, then the scientists, then the heroic and brilliant practitioners, the first steps of the first astronaut to the first spaceship.

"Sergei Korolev was receiving future astronauts.

"'And now,' the Academician said in a business-like, concentrated voice, 'you can take a look at the spaceship. Who would like to?'

"With a sweeping gesture Korolev pointed to the spherical object with a round hatch in its upper section....

"'May I please?' asked Senior Lieutenant Yuri Gagarin.

"Academician Korolev looked at the pilot with unconcealed curiosity. The thin, slight officer with a class

badge of a military pilot on his uniform jacket, froze under the Academician's stare, shifting from foot to foot in embarrassment.

"'You? Yes, you may.'

"Yuri Gagarin walked quickly up to the spaceship, stopped, put out a hand and touched the metal: the ship's covering was firm. This fact or something else pleased the pilot and he turned to those present with a happy smile. It was a Gagarin smile, the smile that the world was soon to know, but for the moment.... For the moment it was not a space smile.

"...As if he were afraid that someone might beat him to it, Yuri Gagarin put his hand on the rail of the step-ladder, to assert his priority, as it were, and then sat down on the tarpaulin and took his shoes off, neatly and quickly, like people do on entering a nice clean Russian peasant house...."

A minor detail, but it recreates the atmosphere, makes us direct witnesses of the events that preceded the first space flight, and reveals one of the small traits of Yuri Gagarin's character, those delightful features of his, without which the fact that the first manned flight into outer space was made by him might seem a pure stroke of good fortune. The fact that Yuri Gagarin was the first was not fortuitous. Over the millennia mankind had been gradually developing and selecting the fine, handsome, brave, modest, intelligent, loving human being, that he was.

Great is the prestige of the first Citizen of the Universe, and infinite the love for him. The people of our planet want to know everything about him. Yuri Gagarin was the first to fly higher than the sky and to open up the path to outer space. Even during his lifetime people in various countries began to call their children, streets, ships, and even whole towns after him. Seven years later he was no more. His great feat, his life and his amazing professional biography were left to mankind.

The present volume contains sketches of several Soviet astronauts. The author seeks to find the right colour for each of them, to bring out the richness and individuality

of their characters, at the same time emphasising the passion shared by all of them for flying, research and discoveries. The author writes about the joint Soviet-American space flight and the brave men who carried it out.

"Since the launching of the first artificial earth satellite and the first manned space flight," said the message of greeting sent by Leonid Brezhnev, General Secretary of the Central Committee of the CPSU, to the members of the joint space crew, "outer space has become the arena of international cooperation."

The reading public all over the world shows an insatiable interest in the conquest of outer space, in everything connected with the life and work of astronauts, in the study of the origins of their achievements, and in the unravelling of the secrets of the Universe. But astronauts started out as military pilots. It was the latter's bravery and courage that created the future of aviation. It would be impossible to mention the names of all those who created aviation, extended its application and made it serve progress and mankind. The author selects people whose talent, experience and achievements make it possible to give a full picture of the history of the development of Soviet aviation.

Anton Gubenko was the first Soviet pilot to ram an enemy plane in the air. Victor Mitroshenkov has succeeded in painting a vivid picture of the great pilot with his infinite love of the sky, a talented innovator and tireless experimenter, who combined within himself superb flying skill and perfect knowledge of the technical potential of an aeroplane.

The alliance of man and technology is, perhaps, nowhere so firm as in aviation, and therefore the demands which the rapid scientific and technological progress so characteristic of our age make on the qualities of the human personality are particularly exacting.

The author constantly emphasises the link between the generations, the need to cherish and study earlier experience, which often cost dear. As we well know, in flying you do not learn something once and for all and

then simply rest on your laurels. In order not to lag behind, not to lose your touch, in order to become more confident, you have to study all the time.

In talking about his comrades and commanders or some famous member of his regiment, the author could not help emphasising the importance of the regiment in the training of military pilots. The regiment is the best school for a man's personal, military and moral development. And Victor Mitroshenkov manages to convey the broad concept of the collective, the regiment.

Mitroshenkov's book is based on fact and contains a mass of interesting information. With a profound and thorough knowledge of his material and sticking strictly to the events, the author has managed to poeticise the dry language of facts and, without indulging in false sentiment, to impart a romantic and lyrical flavour to his narrative.

By "intervening" skilfully and tactfully in his description of events, sometimes in the form of his own reminiscences, comments and digressions, Victor Mitroshenkov strikes an authentic note that makes the reader a participant in the events, as it were, and creates for him what film-makers call "the effect of being present".

Colonel Victor Mitroshenkov is a military pilot. His stories are those of a man of experience who has something to say, something to advocate. For Mitroshenkov aviation and outer space are not just his favourite topic in literature, but his whole life.

As a professional pilot he is most interested in the inner motivation that brings a man to his life's work, that helps him become truly devoted to his cause, whatever he may take up—aircraft designing or the testing of new flying machines, political education work in the army or space navigation....

It is a warm feeling of gratitude to and love for the Army, for aviation, that the author wishes to arouse in his readers, particularly the young.

Victor Mitroshenkov's work is well known in the USSR. He is the author of many books, plays, TV and film scripts. He was one of the first writers in our country

to turn to the theme of outer space and has written several novels and reconstructed a chronicle of Yuri Gagarin's life.

As a member of the Soviet Air Force, in extolling it he does not portray the life of Soviet pilots as an ideal one, or his heroes as supermen. He gives us an objective, critical portrayal of people with their concerns and aspirations and a psychologically profound representation of their actions.

The foreign reader will find in Victor Mitroshenkov's works a great deal that is interesting about Soviet life.

Among the numerous non-fictional books about the modern armed forces Victor Mitroshenkov's *Blue Horizons* holds a special place, because it deals with the fascinating profession of the pilot and is written by a man truly devoted to that profession.

Georgi BEREGOVOI
pilot and astronaut of the USSR

Lieutenant Years

Time carries us swiftly away from our years as young lieutenants.

Lieutenants! They rallied under the battle standards with the indomitable desire to be of use to their country, ever ready to go to its defence.

In a journey round Air Force units we had many meetings and talks with lieutenants. I recalled my own years as a lieutenant, years of questing and development. And I decided to write about them and about the commanders and comrades with whom I began my service as an officer.

* * *

There were three hours to go before the train left. They sat round the table, wished each other all the best, and then suddenly grew sad. Each was thinking his own thoughts.

They had got used to him so quickly, flown so often together, returning from the aerodrome at dawn. They would walk slowly to enjoy the sunrise and the delicate colours of morning: not bright, but so familiar that they warmed your heart. And now he was leaving them, although they were bound indissolubly by flying and fishing trips, arguments about books, volleyball, swimming in the river, and constant readiness to undertake the most difficult missions. He was leaving, although they had been so close on those long evenings when they had made such a din and argued till the early hours about Remarque, the Inquisition and Lutheranism, the enigmatic Saint-Exupéry and the aircraft designer Yakovlev. And together with

him on Mondays they had ruefully remembered the high jinks of the day before and vowed it was the last time....

To fly was the dream and *raison d'être* of our generation. We thought not of ranks or medals, but of flying, of the new aircraft which had not yet reached the drawing-board.

And now he was leaving them.

Leonid Galagan took a sidelong glance at him and rolled little balls of bread in the fingers, but his face was impassive, as if all this did not concern him. He did not approve of showing one's feelings.

Leonid Galagan was the most senior in rank, position and age.

Young pilots are drawn to older ones. They learn about flying and about life from them. In Galagan they had found a true friend, a responsive comrade, and what a pilot he was!

In 1952 there were not yet any MiG-15s. They flew Yak-18s with a MiG instrument panel. They flew a great deal, each day learning to master the new jet fighter. On one of the flights a Yak-18 which was coming in to land collided with Galagan's plane. It happened at a low altitude. The sound of the impact was deafening. People averted their eyes so as not to see the terrible catastrophe. Galagan's plane was falling to pieces, but he managed to make a complicated turn and landed the plane in the aerodrome. After this the young pilots worshipped him even more, he was their idol. But it did not change him: on the contrary, he became even more exacting of himself, and resolved to study his plane even more carefully.

Head on one side, the tall, thin Eduard Gerontyev studied the book shelf with a distracted pensive look.

Volodya Rodnev, nicknamed Ara, kept wanting to say something and opening his mouth, but all that came out was a meaningful cough.

How eloquent was this general silence! They sensed that not only the man about to leave was standing on a threshold. They were all standing on a threshold, awaiting changes.

Eduard Gerontyev was to retire from the army in 1960. Giving up flying was a bitter and painful experience for him.

Vladimir Rodnyev was to graduate from the Lenin Military Political Academy and become head of the political department of a flying school.

But all this was to happen in the future. Today they thought they would never leave the cockpit.

"So you're going to become a parachute tester?" someone said.

Valery Bykovsky shrugged his shoulders.

"Perhaps they'll let you test new planes?"

"I don't know."

"What if they sign you on as an astronaut?"

"Don't talk nonsense. That won't be for a long time yet."

"Write if you get a medal. We'll congratulate you."

"What would I get a medal for? You don't get them for nothing."

"They don't move you from your regiment for nothing either."

"That's true."

"Will you come back and see us?"

"Yes."

"Then we'll all go down to the river, look at the water and answer the question: what have you done during this time for your country?"

A snowstorm raged in the evening. Next morning the snow-covered earth looked as clean and smooth as a freshly starched table cloth. There was no sun yet, it was hiding somewhere below the horizon, and the horizon itself was lost in grey-blue mist. But bad weather is no hindrance to military flying.

Take-off was at eight a.m. We were to fly from an aerodrome near Moscow on a transport plane.

The Bykovskys appeared from behind the hangar. They came up. Valery Bykovsky introduced himself:

"Lieutenant-Colonel Bykovsky."

Then he introduced his wife. They met everyone, including the crew which was standing in formation under the right wing. From the very start everyone felt at ease.

The plane soared quickly and easily into the air. And immediately, as usual, everyone turned to look out of the windows. The sun had risen. We saw it down below us. The sky had encircled the earth and was slipping below the horizon. Covering the kilometres in a leisurely fashion, the plane was carrying us to our old regiment. And for those who began their service as officers there, the very mention of it arouses powerful emotions.

Below us were clear-cut squares of fields, roads lined with bushes, and forest; each fir—the queen of the forest—stood out clearly, and the separate shadows of the trees could be distinguished in the fields; then came haystacks, like sugar-loaves, each in a white cap of snow. The ground had now woken up properly. There were buses and trains, and an airplane approached us at a lower altitude. The ground is best observed from a plane travelling slowly, at high speeds objects become blurred, and the feeling of life is lost. There was a village tucked in a shallow gully. The houses ran down a gentle slope, and the dark line of an unfrozen river wound between them.

It grew warm in the plane. One soon grows tired of looking idly out of the window. We began talking.

"Honestly," smiled Bykovsky, "I have been meaning to keep my word and visit my friends for a long time. But I didn't think it would be so complicated and cause so much trouble."

No matter when or where we met, I had always asked him when he was going to see the regiment. There was not the slightest hint of a reproach in my persistence. Obviously it did not all depend on him. He was always very busy. But I could not help repeating the invitation. Particularly because the boys in the regiment kept on asking.

It was decided suddenly, at a Plenary Meeting of the Central Committee of the All-Union Leninist Young Communist League which was being held in the Kremlin

theatre. Yuri Gagarin and Valery Bykovsky were in the presidium. I saw a note being handed along the rows, and passed it on without reading it. A few minutes later it came back to me. I was about to pass it on again, to the front this time, when somebody said: "It's for you." "Let's meet on the first floor during the interval, Valery," I read. And that's when everything was decided.

So here we were in the plane. The talk was about space and astronauts, of course. And naturally we showed off our knowledge by talking a lot, while Bykovsky listened silently, nodding his head and looking out of the window. But his alert, understanding eyes said more than any words.

Many people think there is nothing worse in life than having to wait and catch up. Bykovsky has done a lot of waiting in his time.

He was one of the first to be trained for space travel. But the first trip to the stars was made by Yuri Gagarin, and when the second was planned Valery was still the stand-by.

Dark the night
And deep the sleep.
Two hearts
in unison do beat.
Now calm and quiet comes the dawn.
A breakfast hot for two is laid.
Two shoulders have the burden borne.
Two hands receive a farewell shake.
One goes,
The other has to wait.

Bykovsky did not just go through the programmes. He studied them, mastered them, and made them part of himself. And each time he had to endure the agony of waiting. Sergei Korolev followed his training carefully, and when the decisive moment arrived, said like a commander:

"You are next."

Before that after each bout of waiting Korolev told him:

"You will fly, definitely. But on a more complicated programme."

Valery was in peak form, when the decision was made that he would go into space with Valentina Tereshkova.

The poetess Irina Ozerova wrote:

In August he was Andrian's stand-by,
Popovich too he saw off into space,
Their joys and sorrows all by him were shared,
And now it is his turn at last to go.

Valery did not talk about the flight. He looked pensively out of the window. The Li-2 was banking and we had a good view of the ground. Everything was under a thick blanket of snow, except a small area—a stretch of grey concrete. We were losing height. The propellers were cutting the air, slowing down their flight. A truck showed us the way. It was unusual to see so many people at once in a military aerodrome. The astronaut was being met by representatives of the town's organisations, the garrison's commanding officers and his comrades. Among them were famous pilots and brave heroes.

But there are the bravest of the brave. I know some of them, and one is Nikolai Gulayev.

In 1938 Gulayev began learning to fly at the Rostov air club. He was very impatient and wanted to fly at once. He studied the construction of the plane, knew the inside of the engines as well as any mechanic, and prepared the plane for flight himself.

Gulayev was accepted for the military flying school as a "most promising" candidate. As soon as he graduated, he was sent to the front. It was the war against reactionary Finland. Here the young pilot received his baptism of fire, taking part in forty battles. Gulayev was quick on the attack, nimble, and made extensive use of verticals. Without being wounded once, he acquired experience which he found very useful when the Great Patriotic War began.

Our pilots were trained carefully for the war against fascism. Gulayev was sent on a course for top pilots. Then war broke out. Gulayev was in a hurry to get to the front. But how could he leave the course in the middle? Should he just go off? The head of the course, Major Kornienko, understood and sympathised with the lieutenant's wish to go to the front, but orders are orders.... They found a way out: Kornienko compiled a personal test programme specially for Gulayev, which the latter passed with flying colours. The head of the course posted him at once.

There was no day or night, no winter or summer. Time was divided into sleeping and flying. There were compulsory rests between flights: short intervals in order to prepare for the next flight. At the Stalingrad front Gulayev shot down eleven enemy planes and rammed one. He began to be written about, interviewed, and held up as an example. He became famous, but this did not affect his character. He remained a shy, warm-hearted and responsive comrade as before, who did not like affectation or big words.

He was unmatched in battle. When an air battle began over the aerodrome of Gryaznoye, Gulayev sped into the midst of the fighters, trying to get at the enemy group leader. He was successful. He was already taking aim at the enemy. Another moment and he would send a stream of bullets into the Nazi plane. Then out of the corner of his eye he saw an enemy plane over the plane of his commander. Gulayev turned his machine to block the enemy's path. The Nazi opened fire. Gulayev's plane shuddered, keeled over on its left wing and began to lose height. The enemy thought the plane was really out of control and flew off, although Gulayev was only pretending. Lower down he straightened out and sped back to the fray.

In July the fighting for the liberation of Belgorod began. And in the sky there was a fierce battle for full and undivided supremacy in the air. Our pilots were flying constantly. One day a column of Nazi planes appeared in the vicinity of Gostinishchevo. Twelve Soviet fighters, led by Gulayev, went to give battle. Twelve against twenty-five. The combat lasted twelve minutes.

Fifteen planes were shot down by our pilots, four of them by Gulayev. A few days later he was awarded the title of Hero of the Soviet Union.

Gulayev fought in the Second Air Army for three years, in different regiments, divisions and operations—the Korsun-Shevchenkovo, the Yassy-Kishinev, and the Berlin operations. His bravery and loyalty to his comrades remained unshakable.

When I saw the yellowing sheets with faded ink in the archives they brought back the harsh reality of war, death, and the trenches. There a man was told only the truth, only what he deserved, nothing more. The testimonial was short and to the point.

"Quick to launch an attack," wrote Valentin Figichev, the regimental commander.

Gulayev finished the war in Prague. Then he studied at the Academy, became a general, and was a delegate to many Party congresses. He studied new planes, the supersonic fighters, and now flies day and night in all meteorological conditions.

Among those who met Bykovsky was also Vassily Voronovich, a living legend of our young lieutenant days. But before talking about him, a few words about another famous pilot, Voronovich's predecessor and our first regimental commander, Ivan Kholodov.

They say the first meeting is what stays in your mind. But this was hardly the case with me. Everything was somehow ordinary and unremarkable. It was a quiet autumn evening when we lieutenants arrived at the regiment. The sun had flooded the horizon with a golden red, and the surrounding countryside—the low bushes, hollows, gullies and the river—was sunk in a mute reverent torpor. This was not quite what we had expected to see.

Suddenly there was a thunderous roar from behind the single-storey houses and a fighter plane, tracing the golden horizon, shot out and climbed upwards in an almost vertical ascent. Its sound could be heard for a long time in the dark grey veil of the sky. For me, as for my comrades, the young lieutenants, this was something new.

A sense of romance awoke within us. We were in our seventh heaven, so to say.

But the meeting with the commander was disappointing at first. He received us in the morning. The short, narrow-shouldered lieutenant-colonel, tossed back his shock of red hair, sat us down on an old couch and asked us to wait. He was talking on the intercom, then he rang someone up and did everything quickly, without the air of solemn deliberation which—to our minds—would have been more in keeping with his post. I had imagined the commander quite differently. He would be tall, well-built, with a touch of grey in his hair, and impressively slow in his movements. Otherwise why should he be called "the old man"?

Our commander was not called "the old man". "Perhaps he lacks authority," I thought, "or the skill". My admiration faded, and my imaginary picture of a commander with it.

No one had yet had time to tell us about the regimental commander. We did not know that he had joined the Air Force in 1934, after reading about the first Heroes of the Soviet Union. Nikolai Kamanin was his idol. Then a Komsomol lad, Kholodov did not even dream that one day their paths would cross and they would become friends.

Ivan Mikhailovich. That was how they addressed the commander. We were not used yet to this lack of formality between airmen, simply because this did not correspond to our childish ideas about regimental hierarchy. Airmen are bound by true and strong friendship. They fight in the air, but also learn not to abandon their comrades in trouble on the ground.

On that first day Lieutenant-Colonel Kholodov told us about the history of the regiment, its traditions and our future comrades. He spoke quietly, simply and confidently. In his leather jacket without any indications of rank he looked like a cyclist.

Then we got down to work. Tests, flying, flying and more flying.... Pilots never get tired of flying.

The commander was with us everywhere. No matter

when we flew, day or night, Kholodov was at runway control or up in the air with us. He was tireless, solicitous and even-tempered; on the rare occasions when he did lose his temper, he would simply say "botheration".

One day Captain Ivan Vakulenko overshot the landing strip and bent the flaps on the undercarriage legs. The commander summoned the pilot. The tall, beefy Vakulenko hung his head as he stood before the small figure of the commander. His whole bearing expressed guilt and repentance. The commander said nothing. Vakulenko kept shifting from one foot to the other, nervously shrugging his shoulders and longing for any kind of reprimand—anything to break this torturous silence.

"Dear me, Captain!" was all Kholodov said.

The more we got to know the commander, the better we understood why people called him simply Ivan Mikhailovich. It expressed a kind of filial respect for him: for we were just learning to fly and live, but this brave, strong and kind man standing in front of us had already attained a kind of perfection.

Kholodov had yet another splendid character trait. No matter where he was doing his job, he did it properly. He always settled down in a place as if he were staying there forever. He did everything with an eye to the future. "Après nous le déluge" was not for him. He believed that he should make things better for the people who came there after him. He built houses and roads and planted trees. Military men like a commander with this character trait. It appeared in him during the war, after all destruction that he saw in those years.

A month after war broke out the regiment in which Kholodov was serving was detailed to defend Moscow. Duties, flights, casualties.... Kholodov fought, watched and thought it all over. Hatred and anger were not enough to beat the enemy. Only skill could do that. So Kholodov acquired it.

On March 4, 1942, he was awarded the title of Hero of the Soviet Union. Ivan Kholodov brought down 26 German planes. He would shoot from any position, usually point-blank, ram, and fight the enemy mercilessly

as long as there was the slightest opportunity to do so.

Kholodov became our friend. We were proud to have such a teacher and tried to spend as much of our time with him as we could. He was a good judge of character and could sense talent in a person. For example, he devoted a lot of attention to the pilot Lyubchenko and helped him in moments of difficulty. Vyacheslav Lyubchenko was originally a mechanic, but then became interested in flying and entered a flying school. He flew well and had his own distinctive style. Kholodov predicted that he would go far and he was right. In 1967 Colonel Lyubchenko, Class I pilot, was awarded the title of Merited Pilot of the USSR.

Our first year flew past. Kholodov was promoted and transferred. Life has its farewells too. He had given a helping hand and said a kind word to each of us in the past. On the last day the regiment was drawn up on the runway in accordance with tradition. Kholodov came out, took off his new colonel's hat, and tried to say something, but there was a lump in his throat. He looked at the lines of men, the planes and the mist over the river—the way he had looked at the beginning of a flight, as if he wanted to fly again today. We stood for a long time facing each other, Kholodov and us, the pilots, technicians and mechanics.

Pilots rarely shed tears, so when they do these tears enjoy a special respect. Tears are not a sign of weakness. In this case they were a sign of devotion. The colonel shed them without embarrassment.

Colonel Voronovich was appointed regimental commander. Tall and agile, with an ageing, deeply wrinkled face, he too became the young officers' friend and teacher.

Of all the young pilots Voronovich immediately singled out Bykovsky. This is how it happened. No other sport was as popular in the regiment as football. Everyone played it. One day the officers decided to buy some proper football kit. But a commander is a commander. He had to stand out from the ordinary football players. So everyone got black boots, except the commander, who

got yellow ones. This produced a strange psychological effect: he would not wear them. The colonel usually arrived at the stadium carrying his boots. He placed them carefully on a bench and then started organising things.

"Now lads," he said, moving from one player to the next, "give it to them. Show them what fine stuff we've got in our regiment. If you play badly, I'll come out onto the pitch myself and give you what-for. Where's the goalie? Come here, Valery. Play well and don't let any goals in."

The goalkeeper, a young pilot, listened to the commander attentively in silence. His brown, slightly screwed-up eyes, watched the players who were warming up by the other goal-post.

He was not much to look at, the goalkeeper. His collar-bone protruded under his blue football shirt, his pointed chin did not need a razor yet, and he was flat-chested. After listening to the colonel, he nodded his head in agreement and trotted off at a leisurely pace to his goal. Reaching it, he gave the post a hard thump as if to make sure it was firm enough, then jumped up to the cross bar and hung from it. After that he leapt to the ground, sat down for a moment behind the goal, and limbered up on the withered grass.

But when the whistle blew, Valery changed beyond all recognition. He moved smoothly and rapidly between the goal posts, ready to stop the ball at any moment. His eyes under the white cap with a black peak were riveted to his opponents. When they tried to shoot a goal, he leapt up, snatched the ball and immediately sent it to his own side. But as soon as the play moved to the other half of the pitch, he again became listless, as if offended by the other team's lack of attention to his goal.

Valery was an irreplaceable goalkeeper in the team. Colonel Voronovich thought so too. But if Valery made a mistake, Colonel Voronovich would jump up from his seat in the central stand, wave his arms and rush towards the goal, threatening to take the goalkeeper off his field.

Valery sometimes had to take the ball out of his net, of course. With his customary calm and a mischievous grin,

the goalkeeper would drag out the ball and kick it into the middle of the pitch. Then Colonel Voronovich would sink dejectedly to the ground, incapable of uttering a single word. His face became bitter, and his bushy eyebrows went up.

Suddenly the commander would grab his new boots that still smelt of leather, unlace them and begin to push his foot into one, muttering something unintelligible. It took him some time to get them on. The match was nearly over. The Sokol team had repaired the break in its defence and went on to win the match. The colonel would take off his boots, without having set foot on the pitch in them.

In the middle of the summer, just before the final match, football was stopped for a while: there was an intense period of flying. The squadrons went out in shifts, every day. They carried out group and individual interceptions and aerodrome manoeuvres. Everyone seemed to have forgotten about football and relegated their hopes of winning the cup to the background.

One night the alarm for exercises sounded unexpectedly. The order was to repulse a raid by "enemy" aircraft and winged missiles flying at various altitudes. Pleased with the success of the exercises, the pilots were flying like acrobats, brilliantly and dashingly. Then something unforeseen happened at the aerodrome. A flight of aces under the command of Captain Rybalko could not take off to intercept the "enemy": one of his crews had not managed to get back from another aerodrome. Rybalko asked the commander to let pilot Bykovsky take the missing man's place. A few minutes later the fighter sped along the runway and took off.

Colonel Voronovich arrived at runway control. The radio was very noisy. Reports and requests were coming in from all over. The commander kept looking anxiously at the sky: a dark mass of cloud was approaching the aerodrome from the northwest. There were already flashes of lightning. The calm before the storm was followed by a high wind. Gusts whipped up a column of dust, wood chips and rubbish.

"Berkut calling Sivash!" radioed ground control. "All planes order to land immediately."

The colonel took the microphone and said in a quiet, hoarse voice, trying to conceal his anxiety:

"Berkut 010 calling Sivash 527. Land in your aerodrome."

The loudspeaker on the table replied:

"Sivash 527 calling Berkut 010. Orders received."

"Sivash, Sivash... How do you feel, Valery?"

The loudspeaker was silent. The commander compressed his lips hard. The corners of his mouth drooped, forming a mass of wrinkles, the thick, faded brows joined in a single line, and the eyes expressed concern. It seemed to the colonel that at least twenty minutes had passed since he put his question to Bykovsky. What thoughts had flashed through his mind in that time. He imagined how confused the young pilot must be up there, and how unpleasant the consequences might be. For Bykovsky was only a class three pilot.

"Sivash 527 calling Berkut!" the loudspeaker suddenly crackled. The colonel started up. "I feel fine. I'm returning to the aerodrome."

The commander's hand became damp.

"Valery!" he said, ignoring the accepted form of radio communication. "You must make a good landing. You'll be the first to come in."

"Orders received!"

The colonel switched on the aerodrome intercom.

"Everyone on the aerodrome: remove all men and equipment within two hundred metres of the runway. Switch on aerodrome lights. Bring an ambulance to meet the plane. Alert the fire-engine."

The heavy mass of cloud was now over the airfield itself.

"Listen, Valery," the colonel began quietly, so that no one near would hear him, then he spoke loudly into the microphone: "Don't lose your head! Take it easy. Go on homing range. Take your bearings. Extend the flaps. Well done! I'll give you my boots! Now you will play in them. You'll beat all the other teams. My boots are special—

they're yellow ones. I can hear your plane. Turn on your side lights. I can see you! Pull the stick towards you a bit. Well done! You're a hero!"

The plane sped along the runway, raising a cloud of spray. Then the aces came in to land after it.

At the final match the Sokol goalkeeper came onto the field in a blue shirt and new yellow boots.

So now when Colonel Voronovich embraced Valery at the aerodrome and said something about that flight and the yellow boots everyone thought it only right. He could be allowed this weakness.

Here, by the plane, they held an improvised meeting. It was snowing and there was a cold, lashing wind. The blizzard soon covered all the tracks.

From the aerodrome they went to the commander's office. Bykovsky listened in silence to the proposed plan of how his time here should be spent. He rejected nothing and made no changes. True, at one moment he could not restrain himself:

"It's embarrassing. I can see how your work is being interrupted. I'm not an actor, I'm a pilot."

After being assured that this would not happen, he went on listening, but objected immediately when it was suggested that he should receive veteran partisans.

"What do you mean 'receive' ?" he said. "I'll go to them myself."

It was decided to begin with this meeting. It took place at the town Party committee headquarters. Valery talked about his comrades and answered questions.

"Did you have any adventures in outer space?"

"Yes."

"They say you are the best of the lot."

"That's not true. Gagarin is."

"Why?"

"Because he was the first. It's always more difficult for the first one."

"What impressed you most during the flight?"

"The news that I had been accepted as a member of the Party. It's hard to describe how moved I was by this."

"During the war there was an underground partisan group in our town. A monument to the young heroes was put up recently. Did you know about this?"

"About the local partisan group? Of course, I knew.

"Its call sign was 'Seagull', like Valentina Tereshkova's."

That day Valery Bykovsky also visited the granite obelisk. There are always lots of flowers here. He too brought a bouquet from the astronauts and stood with bowed head in front of the monument. The snow fell quietly on the flowers.

In the evening there was a meeting with representatives of the townspeople. The factory club was gaily decorated.

"I'm only a pilot," complained Valery to the first secretary of the town Party committee. "It's very embarrassing to be treated like a celebrity."

"Yes, yes," the first secretary agreed lightly and immediately announced that the Bureau of the town Party committee and the town Soviet had resolved to confer the title of honorary citizen of the town on Bykovsky.

There were more written questions, a whole pile of them at once, as always.

"Please tell us about the astronauts' training programme. Is it true that physical form plays an important part in selection?"

"When a person is being trained to fly outside the earth's atmosphere it is essential to pay attention to physical fitness."

"Who will fly next?"

"Astronaut No..."

People in the audience who had understood laughed and applauded.

The townspeople wanted to know about Gagarin, Titov and Tereshkova, about the chief designer and when everybody would be able to fly into outer space.

It was well after midnight, but nobody left, and the pile of written questions diminished slowly.

The first to wake up was Lieutenant-Colonel Ryabtsev. Neat and trim, he went into the hall and waited for the astronaut to wake up.

Ryabtsev was no longer a young man. On July 4, 1943, he had his twentieth birthday. And the night before he had his baptism of fire, in the famous attack on Seshcha.

A few days earlier the underground had reported that a mass air raid on Sverdlovsk and Gorky was being prepared. The Nazis had to be forestalled. So one hundred and eleven Pe-2 bombers accompanied by La-5 fighters set off in a northwesterly direction. Their orders were: to attack immediately before the enemy take-off and to bomb the aerodrome only.

This was Mikhail Ryabtsev's first combat sortie. How would he make out?

In 1940 the instructor of the Minsk flying club, Spizharny, taught the cadets aerial combat tactics. He was fond of saying: "Knowledge is no burden, emptiness is a heavy load."

It was night. They flew in strict formation without lights. The radio was silent. Nothing must betray their presence. On the ground, pointed upwards, the enemy anti-aircraft guns were guarding the sky. The Soviet pilots did not forget this. And they knew that the air defence forces of the Seshcha aerodrome had been tripled. The destruction of a target usually commenced with the neutralisation of the defence. But today it was different: all the bombs were for the enemy planes and the officers' quarters.

Seshcha was ablaze with lights. The Nazi command was preparing to take revenge for Stalingrad. It had been fixed: the place—Kursk, the time—summer 1943. Meanwhile the Nazis were showing impunity and strength.

Their new planes were concentrated in Seshcha: the modernised Heinkel-111 bomber, the new Focke-Wulf-190A fighter and the Henschel-129 strafing plane. They stood in straight rows under the beams of the search-lights, waiting for the final command—"Take-off".

Ryabtsev saw the Nazis start running about the aerodrome in terror, the lights go out one by one and two

Fockers speed along the runway.

So as not to interfere with the work of the bombers Lieutenant Kosolapov, the group leader, had put the fighters higher. From there you could see the whole aerodrome clearly and the burning planes on it.

Kosolapov left the group to Lieutenant Pushkin and set off to attack the Fockers with his number two, Levchenko. A few seconds later another two enemy planes lay burning on the ground.

It was still night when they returned to their aerodrome. After that came many more combat nights and combat days and Ryabtsev found himself in all sorts of battles, but nothing could be compared with the first one, when he received his baptism of fire. Thus war led the young man along its difficult paths. The second sortie was like the hundredth, the hundredth like the two-hundredth, and so on until the last day of the war.

On June 14, 1943, Mikhail Ryabtsev wrote in his diary: "Bessolitsin's No.2, Vassily Balduk, did not return to the aerodrome." Just one sentence. Vassily's place was taken by another pilot, who now had to cover his leader as fearlessly as Vassily Balduk had. And Balduk really had been quite fearless. In one of the combats when he ran out of ammunition, Vassily turned his plane and attacked a Nazi head-on. The enemy tried to turn and escape by gaining height, but it was too late: the two latest high-speed fighters collided. The Focke-Wulf-190A burst into pieces. But the wooden fuselage of the La-5 merely split in one or two places. Fiction? No, fact. "Ivan flies on logs," screamed German propaganda, but no more German pilots dared to put Ivan's courage to the test again.

Air superiority. How hard it was to win. The stages towards it were the Soviet air operations at Stalingrad, the air battles in the Kuban area, the operations to destroy enemy aviation in the spring and summer of 1943, the fierce fighting at Kursk and over the Dnieper, the courage and daring, the devotion and faith in victory.

When the first victory salute was fired over Moscow on August 5, 1943, to the men who liberated Orel and

Belgorod, it was also a salute to Mikhail Ryabtsev.

After the war he graduated from the Air Force Academy and mastered eighteen types of aircraft.

...The darkness was lifting imperceptibly. Lights went on in the building opposite. Ryabtsev sat on the couch and leafed through a magazine. A noise in the corridor made him start up. He hurried to the door. "Listen to that," he muttered angrily, "the astronaut's asleep, and they're making such a din ...."

The door flew open, and there stood Bykovsky, his cheeks glowing from the cold....

"Good morning, Lieutenant-Colonel!" Bykovsky laughed at the genuine amazement on Ryabtsev's face. "I just had to go down to the aerodrome. It was like going back to my youth. I've walked along that path so many times!"

The plan for the second day included meetings with schoolchildren. Bykovsky was a little nervous. He always had great respect for any audience, but particularly for schoolchildren.

School No. 8 was almost next door to the cantonment. The garrison traditionally acted as its patron. The officers, cadets and soldiers often visited it, giving concerts, arranging mock battles and organising the activities of various clubs. There was always a lot going on in the school, particularly in the summer.

When the pilots were busy, the technicians and aircraft mechanics went to the school, and when the aircraft specialists were busy, the pilots went. And so on. The children wanted to know about everything, hear about everything from experienced flyers at first-hand. They were also fond of the technical staff—they had some pretty good technicians and repair men at the aerodrome.

Valery Bykovsky had also visited the school many times. And here he was again, in the familiar hall. The school's Young Pioneer organisation made him an honorary member, and the top pupil put on his tie for him. Being an honorary member implies a lot of obligations.

On the same day Valery Bykovsky visited another school, a technical college and a trade school.

The meetings were long ones. The astronaut gladly replied to questions. These young boys and girls were on the threshold of an independent life. They wanted to know and understand a great deal.

"Why are we investigating outer space?"

"What do you think about the young people of today?"

"Is an advanced civilisation compatible with human shortcomings?"

"What do you like doing most?"

The answer to the last question was:

"Being busy."

In the evening Valery's old friends from the regiment, former Kacha cadets, Cherkashin, Rodnev, Borodkin and some others, asked him to be their guest.

Every officer has his old regiment. By "old" I mean his first regiment. The first encounter with the military collective after military school is never forgotten. No matter where life may take you, what difficult military paths you may tread, you always want to go back to your old regiment for a while and reminisce about your years as a young officer.

And how many reminiscences there were!

On and on we went, recalling the old days.

Only Yuri was silent. He was glad of the meeting, although outwardly reserved. There was a trace of old pain in the sad nod of his head, the wistful eyes. He seemed not to have changed, but....

It happened several years ago. We had received a new plane and begun an active conversion. There was constant flying. The pilots liked the nimble little fighter and everyone eagerly awaited his turn to fly the new acquisition. The weather helped us to make a quick conversion, and soon all the pilots began flying at night. There was a special kind of jubilation in the regiment. It was our victory.

This was the time when Yuri met Nelly. People say you cannot fall in love at first sight, but that is what they did. Nothing is hidden in a small town, and soon everyone knew about their friendship. Nelly was beautiful.

She was a welcome visitor to an officers' evening.

Yuri and Nelly met each day. She used to wait for him after flights. Yuri's friends were glad for him, but we were envious. Nelly was perfection personified, the model pilot's girlfriend. Or so we thought until one day....

We were on night flying. It usually ended at dawn. We were waiting by the aeroplanes in the start area and did not know there had been an accident.

A red rocket had soared up unexpectedly, ripping the summer night for an instant and filling the neighbourhood with alarm. It was followed by a deceptive, ominous silence.

Flying was stopped, and one by one the planes returned to the aerodrome. A cavalcade of breakdown vans sped over the airfield to the town. After a short lull everything sprang into motion.

That night the cantonment did not sleep. A fighter lay sprawled on its belly in one of the streets. The news flashed from house to house, lights went on in the windows, and many people ran out half-dressed, in what they had happened to throw on, to see what the noise was about. A crowd grew up around the aeroplane, but people kept on coming.

The pilot was alive and unhurt. He was walking about by the plane and kept looking into the nozzle.

Someone from the back suddenly began to push energetically through to the front, to the plane. The people gave way unwillingly, some even got angry, but Nelly—it was she—heard nothing. She reached the cockpit and fell on it, searching wildly for the pilot. Her eyes were crazed.

"Yuri, Yuri," she muttered, then catching sight of the pilot and realising that it was someone else, she suddenly went limp, staggered and fell.

Yuri went to see her in the morning. She was sitting on the porch, pensive and somehow aloof. He sat down beside her and drew her to him.

Nelly burst into tears.

"Oh, God. What a tragedy...."

"No one was even hurt, Nelly."

"It's a tragedy. That plane.... We must go away from here, Yuri. Wherever you like. I love you, Yuri, and if you love me too...."

"I'm in the Air Force. I can't go away."

"But I love you!"

"I love you too."

"Planes just fall from the sky...."

"Nelly! Kostya performed a miracle. A bird flew into the nozzle of his plane and the engine stopped. But he did not abandon the plane. He glided and landed in the street."

"Well, what of it? I can't stand it any more."

"Don't be in such a hurry, Nelly, think it over!"

"No, no. Goodbye."

Nelly went away. But Yuri sat for a long while on the porch. He did not see her again. She left the same day. We never talked about Nelly. We wanted to help Yuri, but did not know how. Love and grief are not helped by advice.

The years passed. Yuri graduated from the Academy and returned to his old regiment. We were moved then by his loyalty to our friendship and our "bachelor club". But we knew that Nelly was also the cause of his return to the regiment and these parts. He was not afraid of meeting the past. We felt that he was waiting for something all the time, expecting something.

...Victor Cherkashin was laying the table. His wife Tamara was busy in the kitchen with the other women. But our conversation just would not get going, although each of us was bursting with emotion and had plenty to talk about. I remembered several amusing episodes and related them to my friends.

Valery sometimes visited me at the regiment. One summer he arrived at headquarters without letting me know beforehand. He showed his identity card and was about to enter when the guard stopped him and asked courteously for his pass.

"But I've shown you my identity card," said Bykovsky.

"Yes, but it would be better if you got a pass."

A few minutes later Bykovsky returned to the check-

point with a pass. The guard carefully inspected his papers and the pass, saluted and asked permission to make a request. He was obviously embarrassed.

"May I have your autograph?" he said, blushing.

"Yes, of course. I've got a nice postcard here."

Bykovsky took the postcard out of his side pocket, signed it and gave it to the guard.

Then there was another episode.

One day Valery was going to a meeting with some young workers at a factory. He had a few hours to spare, so he rang me up, and we decided to go for a drive around Moscow. It was a sunny spring day, and the streets were full of leisurely crowds of smartly dressed people.

We drove to the centre. Then I noticed a lot of Volgas, Pobedas and Moskviches around our car. They were trying to get as close as possible, and the passengers were staring at our car. We could see their admiring faces and hear what they were saying.

Bykovsky was unperturbed, as if this had nothing to do with him.

"Let's go there together," he said.

"How can I go? They've invited an astronaut."

"But we're from the same regiment. Doesn't that count?"

Our conversation was interrupted by a militiaman's whistle. One of the drivers had been so engrossed that he had ignored a red light.

The militiaman came up to our car.

"Sorry to hold you up. They're all trying to get a look at the astronaut!"

...In the meantime the vacant chairs at the table were being filled. The pilots' wives came into the room. They were smartly dressed, in festive mood, and spoke respectfully to Valery, which merely embarrassed him. He kept trying to show that he had not changed and was still the same Valery, but this respect widened the gulf and made it hard to relax. Luckily I had a lot more stories about the old days in the regiment up my sleeve, and hurriedly brought them out one by one.

I recalled the fishing trips.

On Sundays we often went out together to the woods and the lake. The truck would stop at the houses in the morning. "Out you come, boys," the driver shouted. The sleepy anglers appeared at the entrances. They climbed slowly into the truck and huddled down next to one another. Then as in a chain reaction they would suddenly all come to life. The jokes flew thick and fast. Captain Nikolai Kuznetsov, who was in charge of the expedition, stood on the footboard, did the roll-call and then checked on the provisions:

"Have you remembered everything? Got the bread, Bykovsky?"

"Yes!"

"Put the sausage in, Aksyonov?"

"Here it is."

"Did you get any cucumbers, Oleg?"

"Yes!"

"Is there enough fuel?"

"There is!"

"Let's go then!"

"Just a minute, we've forgotten the fishing rod!"

"Never mind about that!"

One day Bykovsky was in luck. He caught a big pike. I stretched out my arms and said convincingly:

"A good five kilogrammes, perhaps even more...."

Then we remembered another event.

One day a painter called Krymsky from the Grekov Military Studio arrived. Hands clasped behind his back, he paced up and down the tiny room of the old Officers' Club building which had been damaged in the war. Krymsky was in a foul mood. He was worried about whether he would be able to carry out the task with which the Studio had entrusted him.

"There isn't a single typical face," he thought aloud. "The aces have become an extinct race. Where are the real pilots? The ones it is a pleasure to look at: with a powerful build, high forehead, wide, bushy eyebrows, a proud stance, and a firm mouth? Everything here is wrong."

Krymsky folded his arms on his chest and waited, frowning, leaning against the old green-spotted wall. Then the telephone rang. The painter snatched up the receiver, as if only the telephone could bring him relief.

For a while he listened in silence. His face clouded, his brows knitted, his mouth developed a nervous tie and anger blazed in his eyes.

"Can't you understand?" he shouted into the black receiver, unable to restrain himself any longer. "I don't need flying classes, I need people. Their faces—brave, heroic and stern. And who do you send me? Short, puny lads, as shy as sweet young things from a ladies' seminary! Where is the desperate struggle with the elements, the foe? Where is the iron self-control, the resolute determination? Help me. You're a commissar, you must understand how important the Studio's order is. Send me a real ace. The best young pilot in the regiment.... Ah, that's right. Many thanks."

Krymsky got busy. The sad furrows vanished and his face became welcoming, even kind. A flush appeared on his cheeks. A frame with a clean canvas was mounted quickly on the easel, his palette got fixed to his thumb, and his right hand played with the brush. The painter was preparing himself to get down to some serious work.

"May I come in, please," he heard from behind the light wooden door.

"Yes, yes," the painter sang to the tune of a popular song from an operetta.

A lieutenant came into the room. He was obviously ill at ease. Krymsky looked at the thin pilot with the pointed face and thought to himself: "No ribbons. The face of a young boy. And eyebrows like martin's wings. It can't be him."

"Don't be embarrassed," the painter said unexpectedly. "You want to see how a picture is painted, do you? Well, sit down here and don't get in the way."

"The deputy political instructor sent me," said the lieutenant quietly.

"You!" The artist's light-hearted expression disappeared and his face became ferocious.

A second later Krymsky rushed to the telephone, muttered something unintelligible into the receiver, and then collapsed limply onto the only chair. He squinted at the lieutenant: shining, jet-black hair, a painted, boyish chin, stooping shoulders, the gold badge of a class pilot on his chest, the relaxed, sportsman's stance.... There was a mischievous twinkle in the pilot's eye, but the painter looked away.

"Sit down, Comrade...," was all he said.

"Bykovsky," finished the pilot.

"Yes, yes, Comrade Bykovsky."

The sitting lasted two hours. After a cold farewell to the pilot, the artist left for Moscow the same day. He told the Studio that he had not carried out the order.

After the pilot's flight into outer space a painted portrait of the astronaut appeared in the *Krasnaya Zvezda* (*Red Star*) newspaper. The thin lieutenant was looking at the reader with an embarrassed expression in his penetrating dark eyes.

Finally, I just had to describe another amusing incident.

In the summer of 1964 I was taking the state final examinations at the Institute. The large light hall was decorated with flowers. On the threshold was a group of students, whispering to one another and leafing through textbooks. Catching sight of the chairman of the state examination board, the students fell silent and began to move off in different directions along the corridor.

"Where are you going?" Professor Samoilo asked the rapidly disappearing students. "Come along, my friends, be brave. Take your question slips."

The door slammed, dividing the students into two groups. On one side were those still suffering the agony of waiting, and on the other the ones who had dared to "cross the Rubicon". But on either side there was an oppressive silence.

Suddenly the door opened slightly and a head appeared.

"Excuse me, Professor, may I..." the head began, but was not allowed to finish. Professor Samoilo cut it short

with a decisive gesture and beckoned the owner to come into the hall.

"I know, I know. Come in." When the young man came in, he told him in the same firm manner: "Take a question slip and sit at that table over there to prepare your answer."

The young man approached the table hesitantly. He was obviously embarrassed. For some reason he adjusted in a military fashion the dark-blue suit which fitted him perfectly already.

"You see, I've come...."

"Find the lucky number, it's there in front of you."

These words brooked no refusal: you're here, so take the exam. The young man shrugged his shoulders, stood for a moment, nodded absently at one of the students at the front table and ... took a question slip. It was number 16.

The members of the state board had been too busy to follow what was happening. Nor did they notice how the student sitting at the first table gave a grimace of surprise, then snorted in an attempt to suppress his laughter. After that everything took its normal course.

"Who's ready?" asked the chairman of the examination board.

"May I?"

"You?" He seemed a little surprised. "Yes, of course."

The possessor of slip number 16 walked smartly up to the table and said:

"May I begin?"

The senior teacher Alla Dubrovskaya looked up at the young man and began fidgeting nervously on her seat: "Surely it's not?..."

Meanwhile the young man was answering the first question. The professor listened carefully, nodding his head. Then, after consulting with the members of the board, the chairman said: "That's enough. Go on to the second question now."

The young man read out the second question: "The development of will-power and character."

Silence reigned in the hall. The Rector of the Institute,

Valentina Shepilova, looking surprised and puzzled, slipped in quietly and sat down on the edge of a chair. Professor Samoilo sensed, rather than saw, that something funny was going on. He could not see very well without his glasses. He sensed that his colleagues were staring at him, sensed their excitement and tension. But did not understand the reason. The examination continued.

"Thank you, young man. Have the members of the board any questions? No. A good answer. The examples from the lives of the astronauts were excellent," the professor summed up. "You know Makarenko well. Excuse me, what is your name?"

"Bykovsky."

"What?..."

The professor's hands fumbled for his glasses. He put them on his nose and only then saw before him the face that was so familiar to the whole world. Yes, it was the astronaut and space record-holder Valery Bykovsky. He wore no decorations on his dark blue jacket: not the star of Hero of the Soviet Union or the medal of pilot and astronaut of the USSR....

Professor Samoilo was most embarrassed.

At last he managed to say with difficulty:

"Forgive me...."

"You must forgive me, Professor. I dropped into the institute to give moral support to someone from my old regiment, and had to take the exam myself...."

"You passed it with distinction. Congratulations."

There was applause in the hall, and a member of the board remarked.

"If you decide to enter our institute, you need not take the pedagogics exam."

We went out of the hall together. Bykovsky's wife Valentina was waiting downstairs. She wanted to know about the institute. I told her everything I could.

"I would like to study here," she said.

And so she did. That summer she passed the entrance exams and was admitted to the institute.

...That evening we exchanged reminiscences about Kacha. The Kacha school is the oldest school of pilots in

the whole country. The development of our aviation is linked with its history. Among the school's pupils are two hundred and fifty Heroes of the Soviet Union, eleven of whom have twice received the title of Hero of the Soviet Union. From its walls came air marshals Konstantin Vershinin, Pavel Zhigarev, Sergei Rudenko, Vladimir Sudets, Nikolai Skripko, Filipp Agaltsov and Sergei Zhavoronkov, and one hundred and fifty generals.

One must never forget his school, his training college, and his first regiment.

Pensiveness, not dreaminess, is typical of Bykovsky. He will suddenly abandon a conversation and become engrossed in his own thoughts. Or he suddenly becomes abrupt and just as suddenly returns to his customary politeness. He can read for hours without betraying his presence. Sometimes he seems shy, unsociable and self-centred. Even we, his friends, occasionally thought this of him.

We envied him—his memory, his excellent answers at oral examinations, but we did not know that this was the result of a lot of extremely hard work, constant mental effort. An observant person could see from his eyes alone how active his brain is.

...Another morning.

"Well, today I will be the first up," decided Lieutenant-Colonel Ryabtsev. So as not to disturb us, he walked past our room on tiptoe, threw open the door into the hall, and saw Bykovsky reading a book.

Ryabtsev was so surprised he did not know what to say.

"Good morning, Lieutenant-Colonel. The days have been so busy, I've hardly had any time to read."

"Did you sleep in the night?"

"Yes."

Colonel Podchernayev came in.

"They've given you too much to do here. We'll have to cut something out."

"Please don't make any changes in the programme, Colonel."

"I shall have to, unfortunately. Take a look yourself."

Podchernayev took out a sheet of paper and put his

glasses on. "8.45—inspection of barracks and class rooms. 10.00—meeting with personnel. When are you going to have breakfast?"

Podchernayev turned the sheet of paper over, as if he expected to find the answer there. But the other side was blank.

"Yesterday they didn't allow for lunch and today they've forgotten about breakfast," grumbled Podchernayev. "We'll have to skip something. The flying, say. What if you don't go to the flying?"

"No. I must go to the flying."

The garrison personnel was assembled in the men's canteen. The huge hall with the colonnade was packed to overflowing. It was quiet. But as soon as the astronaut appeared, there was a roar of delight and applause. Bykovsky looked slowly round the hall. How often he had been there. Checking that everything was in order, sampling the food, and giving permission to serve it up. He had come as a lieutenant, then as a senior-lieutenant....

There are times when a person's mind has to monitor a vast stream of information so that the innermost recesses of the brain can select the necessary facts.

Today Bykovsky had to tell his old regiment about his life and his work. The past became especially precious at this moment, acquiring a special importance. His achievements of recent years were left behind; in front of hundreds of eyes, face to face with the audience, was not an astronaut who had once served in the regiment, but a pilot of the regiment.

He had come to the garrison as a lieutenant. Walking with a small suitcase past the ruined Red Army Club, where he stood for a moment by the charred doorway, looking thoughtfully at the traces of shells and bullets.

War had left its marks here. The garrison was repairing the damage, healing its wounds.

In this garrison young pilots were taught the art of warfare by Pokryshkin and Kholodov, Golubev and Voronovich and other famous Soviet pilots. And flying was their main school of training.

Aircraft with high fins and bombs under their swept-back wings standing on the pre-start line are a splendid sight.

A sputtering green rocket describes an arc: "All planes on duty—take-off." The radar aerial moves, the command points are put on the alert. There, somewhere in the far distance, is the target. The enemy is approaching the protected target zone. Pilots in special suits and heavy fur boots disappeared into the cockpits. The technicians were still on ladders by the side of the aircraft, helping to prepare them for take-off.

The noise of the roaring engines could not be heard behind the huge panes of aquarium glass at runway control. A plane sped along the runway and took off sharply, piercing the blue. Two minutes later came the report.

"520 calling. I have reached the set altitude."

The plane was several kilometres up from the ground. Now, accompanied by radar, it would enter the military operations zone. Here, at runway control, the flying control officer followed the progress of each plane. The location of any plane could be found at any time on the screen.

A new fighter was on the start line. A brief "permission to take-off", and the plane flew off into the sky. The flying control officer kept on sending the planes up. It looked as though there wasn't any more room for them up there. They seemed to be swarming together, in dangerous proximity. But only the uninitiated would think so. That is out of the question in flying, where there is a high degree of organisation.

The first reports came in from the test range:

"Target destroyed!"

"Objective hit!"

"Installation put out of action...."

And so on without a stop. The unit commander, Lieutenant-Colonel Rybalko, rubbed his hands contentedly.

Borodkin taxied his plane to the runway, braked, and moved the throttle lever forward. Let it have a breather.

The plane inhaled thousands of cubic metres of air and exhaled with the force of a thunder clap. When the plane sped forward, its thin-section surfaces with their small span seemed superfluous, unnecessary. It was like the take-off of a rocket, not a plane. It rose straight into the air.

An unannounced aircraft had appeared in the military operations zone. The flying control officer gave the order to intercept and destroy the "enemy". The aircraft despatched from the ground sped towards the "enemy" at great speed. It was only a game now, but the Air Force exists to ensure that there are no surprise attacks. It exists for war. And pilots have no illusions. A pilot's task is to be able to fight the enemy, using all combat methods, even ramming.

Rem Borodkin's log-book reflects the stages of his development as a pilot. It includes the following entry: "Flies in all meteorological conditions". It takes a lot of hard work, experience and will power to master a supersonic missile carrier and fly in all weather conditions. A pilot makes several flights a week. And however much we may like to imagine that they are all the same, each one is different, unique, and only the pilot can tell the difference between them.

In aviation you do not learn something once and for all and then simply rest on your laurels. You have to study every day so as not to lag behind, not to be off form, so as to become more confident. In the same way, a pianist who stops practising every day loses his skill. A pilot must fly.

One day Command decided on a long flight. The route went through complicated meteorological areas and the landing was on an unpaved airfield. This type of flight was difficult even for an experienced pilot. It was decided that only volunteers should fly. Communist Party member Borodkin was the first to come forward.

They had to fly at various altitudes, often in clouds. Icing reduced speed, but the defrosting equipment worked perfectly: the silvery scales of ice were thrown off the aircraft's surface, and the fighter leapt forward, as if it

had taken heart again. Finally came the landing. Landing a high-speed, multi-ton aircraft on an unpaved surface is no easy matter. But it is good training for wartime. And Soviet pilots successfully mastered unpaved airfields. The mission was carried out with distinction.

After his meeting with the regiment personnel the astronaut arrived at the airfield. Work was proceeding smoothly at runway control. Flying control officer, Lieutenant-Colonel Rybalko, was issuing brief commands over the radio:

"Twenty-seven, your flight level is number ten."

"Thirty-nine, the enemy is to the left of your course."

To the left and at the back are the duty orderlies, telephonists, plotters and navigators. They maintain contact with the ground stations.

General Gulayev had his eyes fixed on the plotting board, the air situation chart. The flying control officer must know the training level of all pilots in the regiment, their psychological peculiarities and technical potential, and remember which mission is being carried out by a pilot at any given moment and where. He must be ready to receive the aircraft returning from manoeuvres, to take charge of the guidance service and landing system, to maintain contact with headquarters, etc. And, of course, the flying control officer is greatly assisted by the technical equipment. It automatically solves complex tasks and delivers the necessary signals to the pilot's cockpit.

The general watched the operations of the plotters. The speed was colossal. At one time the speed of sound was regarded as unattainable for flying. Now that is far behind.... It will not be long before the speed of sound will have to be abandoned as an equivalent of flight speed. Some other measurement will be needed, obviously, perhaps the speed of light. After all, they are already working on photon engines!

Perhaps this is what the general was thinking about? In a pilot's lifetime aviation had covered a path equal to a century of technological progress. That is in the 20th

century. And what will a pilot's lifetime be equal to in the 21st century, the 22nd or the 25th?

While flying Valery Bykovsky met Vladimir Rodnev, an old class-mate from Kacha, with whom he later served in the same regiment. Rodnev was one of those who saw Bykovsky off, when he left the regiment to train as an astronaut. On the day when Bykovsky went into outer space, Rodnev was in the duty house.

During take-off he stood by the open door, breathing in the cool, night air. The wind seemed to carry a delicate, barely perceptible scent of height. The pilot smiled. He remembered his friend's words: "High up air has a smell." Bykovsky was fond of saying that. Was it so long ago?

Vladimir Rodnev thought himself a lucky and a happy man. Without any particular effort he had graduated from the fighter training school and mastered a new plane.

He had wanted to become an astronaut. He wrote a letter to General Kamanin. Now and then, in an effort to cast off the thoughts which filled his mind, he would ask: let me train to be an astronaut, I won't let you down.

The crackle of the intercom interrupted his reminiscences. "Alert!" came the order.

Rodnev ran into the duty house, grabbed his helmet and rushed to the plane. With a practised movement he snapped the spring hooks of the parachute, closed the canopy and turned on the switches. The turbine began its high-pitched whistle. The plane sped along the runway and took off almost vertically with a thunderous roar. The gradually diminishing noise could be heard for a long time after the plane had vanished into the dark grey haze.

A new day was beginning.

Rodnev examined the instruments carefully. He noted the position of the needles and watched the horizon. Here, at an altitude of several thousand metres, the huge disc of the sun could already be seen. Its first rays fell on the wings and the canopy, thrusting their way to the ground through the grey shroud of cloud.

It was hard to look for the "enemy" in this constantly

changing play of light. The eyes got tired and began to water. It was good that the plane had its own all-seeing eye on board—the radar sight. Vladimir watched its blue screen carefully. A greenish spot appeared in the lower corner and zigzaged across.

The target spot! Now the radar would not let the "transgressor" out of its invisible tentacles.

The aircraft approached the target. Just a little closer. Now! His finger pressed the button on the control stick. Fire!

The intercepter turned and headed back to base.

When a mission has been completed, you can take a breather. Rodnev turned off the afterburner and relaxed. The minutes flew past unnoticed in his pleasant reverie, then suddenly.... What's the matter? Why has it gone quiet?

He looked at the tachometer: the needle was dropping to nought. The plane was losing height rapidly.

His report to ground was short:

"Twenty-seven calling. Engine failure."

Then his courage was put to the test.

"What shall I do? Bale out? Leave the plane and save myself? No, it's too early to think of that. I must try and save the plane. First thing to do is save fuel."

Rodnev switched off almost all the instruments. Only the radio was still working. A hurried movement, one turn of the knob, and there was a crackling in his headphones, then some words came through. The voice sounded very familiar.

"For me the path to outer space began when I took up flying. At flying school Vladimir Rodnev, Victor Cherkashin and I used to dream of great speeds and heights, long-distance runs, hard and heroic flights...."

It was Valery!

Bykovsky continued:

"It's a long time since I saw my friends. But I am sure that they can still be relied upon entirely. Come what may, they will carry out any mission."

Vladimir settled back. His cheeks were burning. There

was a lump in his throat.

"Calling twenty-seven! Calling twenty-seven!" ground repeated insistently. "Why are you silent? Report on your condition."

"Everything in order!"

"Is the engine working?"

"No, but it will. I'll make it."

Rodnev waited. One, two, three seconds.... His hand moved to the switches. The pilot began to start the engine. His gaze was fixed on the instrument. The motionless needle suddenly jumped and began to creep upwards. Rodnev wanted to shout "hurray", but he restrained himself. Over the air came the usual words:

"Twenty-seven calling. Request permission to land!"

The wheels touched the concrete and the air was filled with a mighty roar. Vladimir Rodnev jumped out and took a deep breath of the light breeze. "High up the air has a smell," he recalled.

And flying went on as normal.

...Valery Bykovsky went from runway control to the duty point, which, for him too, was linked with many warm memories. From there he walked along the narrow path through the bushes to the aircraft park. And there among the others was his plane....

Everything was just as it had been years ago. Bykovsky was met by the aircraft technician Anatoly Ulyanenko, who had once served in his crew.

"Plane ready for take-off," Ulyanenko reported.

It was a carefully and lovingly prepared surprise.

Valery embraced the technician. Then he inspected the aircraft, climbed into the cockpit, and sat there for a long time, fondly stroking the cold metal.

A pilot gets used to his plane. He becomes attached to it, heart and soul. And entrusts his life to it.

When the radio announced on June 14, 1963, that Valery Bykovsky was in outer space, the regimental commander was flying the very plane in which Valery was now sitting. Rybalko sent a telegram:

"Valery! All with you up there! Congratulations. Proud and happy. Land by the 'T'!"

"Your old regiment. Colonel Rybalko."

The astronaut received the telegram, and among the mass of messages that he sent to earth—planned and unplanned, official and unofficial—was a short telegram to his old regiment, most typical of Bykovsky.

"Thanks, friends. Yours as ever, Valery."

...Evening was falling. The snow shone with a phosphorescent glow. Lights went on in the windows: yellow, orange and green, colouring the path beneath our feet.

It was his last evening with his old regiment.

Bykovsky had travelled a lot and seen a great deal. He had been to India, Indonesia, Burma, Nepal, Ceylon, Bulgaria and Poland. And he told us something interesting about each country.

There were only a few hours to go before Bykovsky left. And when would he have the chance to come here again? It was a sad moment, when one wanted to say something special....

"A long time ago," he began quietly, "the commander presented me with his boots. I played football in them for many years. And I still keep them. I would like him to accept a present from me—a pair of boots. They are also yellow ones, the same size as the others. Thank you for everything, Colonel Voronovich!"

Colonel Voronovich got up and walked towards Valery. With each step, as the astronaut spoke, his face became transformed. His eyelids flickered, his face muscles twitched and his lips gave a quiver. Who would not have been moved at such a moment? Or perhaps he was thinking how everything is connected, how an insignificant fact sometimes acquires great importance. In education everything is important. A commander's words and actions must measure up to this.

Had the regimental commander ever remembered that he once gave the pilot a pair of boots? Perhaps. But the pilot certainly had.

Lieutenants.... In the lives of each of us there were lieutenants whom we loved and sought to emulate.

I remember studying at a special Air Force school. It was after the war. We were billeted in Sverdlovsk. In the summer at the end of the academic year we went to camp.

Our little wooden houses were a long way from the town, in a dense pine forest. We studied military history and technology, swam, sunbathed, went hiking and did fire-watching duty. We used every opportunity to get better acquainted with the area. But we were not allowed to go far, and we had already managed to investigate everything within a radius of four or five kilometres.

One day the villagers of Monetka invited us to a celebration. There was great excitement, although we knew that not everyone would go.

The amateur art group and the brass band were allowed to go. A lieutenant who had come to us from fighter aviation was put in charge.

But how were we to get there? We had no transport. At two p.m. we set off into the forest, in a long line. It was twenty-six kilometres. The concert was to begin at eight p.m.

The month was July and very hot. The sun blazed down mercilessly. We would descend into a cool ravine, only to climb up again, clambering with difficulty over the roots of the coniferous giants which clutched convulsively at the stony soil. There were no more jolly songs. Only sharp, irritated rejoinders. But the lieutenant walked on in front, without a trace of fatigue, only checking our course on his compass very often.

It was after nine when we arrived at the village, and the concert began immediately.

The lieutenant disappeared somewhere. After announcing the next act, I went to look for him to find out whether we were to spend the night there. I went up to the first floor, opened the door of a narrow room in semi-darkness, and saw the lieutenant. He was lying on a couch, his face contorted with pain. I looked at his legs. They were bandaged.

Seeing me, the lieutenant stood up and gave a forced smile.

"Excuse me," I said.

"Come in, come in."

Limping, he walked up and down the room and stopped at the window.

"It's my old war wounds. Nothing much.... What did you want?"

"When are we to return to camp, lieutenant? The concert may go on later than planned."

"We are not spending the night here. But we must show the whole programme."

"Yes. Perhaps," I added hesitantly, "we could carry you, or get a horse?"

"Don't even think of it!"

At three a.m. we set out on the return journey. The lieutenant was again in front, joking and cheering up the tired ones.

Many years have passed since then. I did not meet the lieutenant again after the course was over and I cannot even remember his name. But I try to be like him always in all things.

In the plane Valery Bykovsky was silent for a long time, looking through the window and trying to make out the snow-covered places where he had began his years as a lieutenant. The three days spent in his old regiment had brought back those years vividly.

Anton Gubenko

"Although I had wanted to be a pilot ever since childhood, my independent life began with an unusual profession—a dolphin hunter. Together with a group of fishermen I would go out to sea in an old motor-boat. The dolphins were splashing about in the blue water, opening their big-toothed mouths like huge beaks.

"A red-haired lad with knotted muscles sat at the stern and scanned the horizon with the muzzle of his gun, watching for prey. I lay beside him, ready to jump into the sea at any moment. My job was to stop the wounded dolphin from sinking to the bottom. As soon as the shot rang out, I dived into the water, grabbed the dolphin by its slippery, pointed nose and dragged it to the surface. Then I stayed with it in the water, until the boat came up...."

Anton devoted six months to the sea. Then one day he took off his overalls, went to the boat's captain and said:

"I'm leaving. Thanks for the work. I can't destroy these animals any more."

He returned to Mariupol, the town where he had studied at a trade school before leaving suddenly in search of adventure. He got a job as a fitter's mate and joined the Young Communist League. He took up social work and sport and set about realising his cherished ambition—to be a pilot.

In May 1927 Anton went to the district committee of the Young Communist League with a request: "Please support my application to study at a military flying school. I promise always to uphold the honour of the Young Communist League." That evening he wrote to his mother: "I cannot live without the sky, I am not afraid of

the difficulties and dangers that await me.... I want to conquer the sky, to make it habitable, like the earth."

A few years later Anton wrote to his elder sister, beloved by him and his many brothers and sisters as the person who looked after them and brought them up:

"Mother Tanya,

"An hour ago I was officially recognised as a military pilot! I am now a tiny part of our huge and powerful Red Air Force and share responsibility for protecting the life and work of Soviet citizens. I have decided to go and serve where there is most likely to be an attack on our country. My request has been granted. I am going to the Soviet Far East. Yes, Tanya. I am happy. I feel that my strength and knowledge are needed there. Those difficult conditions will toughen me up and give me some essential combat experience."

I

Then came the first flight, with an exciting sense of the sky, the open space, and the power and the ability to do something unusual.

Before his emotions had died down, Anton Gubenko reported to the detachment commander on the results of the flight. The latter looked past him and ordered curtly:

"Forty-eight hours detention!"

The commander of the detachment was not a bad person, but he was stubborn and abrupt, like Gubenko himself.

"Yes. But what for?"

"For what you got up to in the air."

"I wanted to test the plane. I only did two extra manoeuvres!..."

"Aerial acrobatics is not part of our programme. You're a military pilot, not a circus performer. Nobody asked you for an encore, see? You will get forty-eight hours detention...."

Outwardly Anton took the punishment calmly. He saw it as the result of certain contradictions which neither the

detachment commander nor he, Anton Gubenko, was capable of resolving.

The commander was right—he had broken the rules. But he was also right—"aerial acrobatics" was not an end in itself, but the way to achieve professional skill. He had tried to prove this at the school as well, but the result was the same—punishment for breaking the rules.

Gubenko asked permission to leave the aerodrome. In the evening his friends came to him.

"Don't be miserable, Anton," said the pilot Strigunov, a calm, well-balanced person, but a bit slow off the mark, as they say. "You'll have worse than that in life."

They again began talking about flying and rules.

"They want to tie us down to the manual, but it doesn't give us enough scope. I want to look forward, to the future, not repeat the things of the past."

"What a clever chap we've got here. Anton Gubenko! Give him a hand," joked Ivan Frolov, then he continued seriously: "We haven't come to cheer you up because you've been punished, Anton. You're right: we need to fly more, to make the programme more complicated and introduce more combat elements. Things are tense in the Far East, war may break out any moment...."

"That's right, Ivan," said Gubenko. "We should fly in all weather, in all conditions, and at all hours of the day or night. But we're as scared of the night as prim young ladies. Night is a guarantee of success. But one thing is essential here, to my mind—being able to do low-level flying. When I chose to do hedge-hopping flights, it wasn't for fun. In order to fly well close to the ground, we need 'aerial acrobatics'. A risky figure near the ground comes off if you have practised it at high altitudes."

That evening Anton Gubenko came to the conclusion that it was essential to learn to fly at night. With his boundless love of the sky, he put his trust not in superficial intuition or daredevil recklessness, but in sound knowledge, constant training, persistence and hard work....

Gubenko began to arouse both respect and distrust. He was thirsting for "battle". "Alright then," decided the

squadron commander, "you shall have it."

Squadron commander Birbuts, tough, experienced pilot, was known for his somewhat crude intrepidity and contempt for trifles. He even flew without safety goggles, considering them an unnecessary luxury. Before allowing the stubborn pilot to do night flying, Birbuts himself took him up as a passenger on a short night flight.

Then Gubenko was allowed to go up on his own, the moment he had striven for so persistently. The runway was marked with bonfires. The engine accelerated and suddenly emitted a cascade of sparks. His heart missed a beat. This trail of sparks is a perfectly ordinary occurence, which is not so noticeable in daytime.

The plane flew past the bonfires and entered total darkness. There was nothing except the lighted cockpit. Then lights began to appear on the ground. Picturing in his mind's eye the map of the area, Anton picked out the station and the road. Then the lights disappeared, and there was darkness again, with bright stars against the black drop-curtain of the sky. For a pilot the sky is indissolubly linked with the ground. He carries the ground with him, as it were, and feels, senses it all the time. The mountains, the forests and the buildings are all engulfed by the night, but they live on in his imagination. They have to, because otherwise he might have an attack of claustrophobia, fear of solitude, mistrust of his sensations. The brain must work intensively.

He did a slight bank. Splendid! Anton was delighted to know that the engine was responding well. Then a little roll. Hurray! What a night! He could do some acrobatics and nobody would see.

His first night flight made Gubenko famous and won him the right to battle for more exceptions to the rules. But it also gave him a fright about which he told nobody. This is what happened. Gubenko had closed the throttle to idling and was already above the lighted runway, when he suddenly caught sight of the dark silhouette of a plane which was about to cut across his path. The two planes would collide somewhere near the landing T. How crazy! Who would do a night landing across the runway? His

lightning reaction was to turn aside. But this was no easy manoeuvre to carry out near the ground. He had to accelerate sharply and make a fantastic turn which, in other, normal, circumstances with time for reflection he would never have dared to do. The plane turned aside slowly with a terrible groan, the wing almost touching the ground.

This happened over the aerodrome, and the pilots, technicians and fitters who were present assumed that this complicated acrobatic *pas* was Anton's latest trick. At that time there was nothing particularly disgraceful about having the reputation of being a reckless daredevil in the air. Many tales were told about them and the young sought to emulate them. Among such pilots who showed remarkable courage and skill, there were many who simply loved the limelight and enjoyed taking wild risks. Anton Gubenko was not one of them. He was an innovator and experimenter, a man who sought to combine the technical potential of the plane with the tactical need for combat. He also took risks, and was often the first, but he prepared for each new flight as carefully as a student prepares for his weekly test.

Gubenko was not a reckless daredevil pilot, nor had he yet mastered all the secrets of the art of flying, although his incredible turn was greeted with gasps of amazement. He was congratulated and called a "real daredevil", a "circus artiste", an "acrobat", etc. Nobody even suspected the real cause, which was that Gubenko had been frightened by the shadow of his own plane! Not even Birbuts who appeared at once and reprimanded him soundly for recklessness.

Lieutenant Gubenko's flying skill grew. During exercises and demonstration flights he showed a high level of training, a masterly control of the plane and the firing skill of a sniper. He was written about in the newspapers of the Soviet Far East military district and mentioned in an order of the commander as the best pilot in the unit. But there was also much that he was not forgiven.

II

In his annual report on the youngest pilot in the air squadron, Lieutenant Anton Gubenko, flight commander, Colonel Chelishev, wrote:

"Strong-willed, decisive, stubborn and impressionable, lacks discipline both in the air and on the ground.... Frivolous in his attitude towards work and does it carelessly, which is explained by the fact that his character is not yet fully developed.... Flies most willingly, but lacks flying involvement. Plays with the plane in formation (handles it roughly). Good in calculating landings but landing technique not fully developed. Aerial gunnery: towed target shooting above average."

The commander of the second detachment, Senior Lieutenant Kovalev, agreed with the report and concluded that Gubenko would not make a good fighter pilot.

But Anton would not give up. His arguments for increasing the flying load were convincing. His comrades believed him and supported his ideas. Gubenko began to train in joint flights with Ivan Frolov. This was a secret which they kept from everyone.

Garrison life brought Anton its joys. He became fond of the austere countryside of the Soviet Far East. He often wandered round it and went fishing or hunting. He loved the gentle slopes of the hills, the clear rivers, the slender willows and the scent of the wild rosemary.

The garrison was in a remote spot, far from any towns or villages, and there were no amenities or entertainments to speak of. But the difficulties drew the pilots closer together. They set about improving the garrison themselves, planting trees, building roads and equipping the garrison club.

It was a very ordinary day, although it ended in the most unexpected way for Anton. After the day's flying there was a special meeting at the club in honour of the

garrison's top airmen. The best pilots, technicians and air fitters received honorary cards, certificates and prizes.

Gubenko caught himself waiting for his name to be called out and, feeling embarrassed, hurriedly left the hall. He stood for a moment in the empty vestibule, then went up a side staircase to the first floor and stopped in front of the first picture to catch his eye with the one desire of calming down and trying to understand what he was feeling. Was it simply envy, the desire to be top? Or the urge to master the secrets of flying, to conquer the sky, as he had dreamed in his youth? Anton did not hear the approaching footsteps and swung round at the sound of a familiar voice.

"You're a top airman too, Gubenko. A real artiste in the air, I would say. There's only one thing wrong...."

The squadron commander, Major Ivanov, was standing in front of Anton.

"Did you say that, Major?" asked Gubenko, not knowing whether to be glad or sorry. "What is wrong?"

"You fly for yourself, that's what is wrong," said Ivanov. "You even regard discipline as ballast for yourself. But all round you there are people, your comrades, for whom your example may be very dangerous. Tell me what's the matter. If you want more flying I'll permit it, only in a way that will not set a bad example for others. If you want to prove your worth, we'll give you more complicated missions. But take yourself in hand. Remember that you are in the Red Army...." Ivanov looked at his watch. "It's nearly time for the interval. Sit down. You often hear people say: take care of the plane. Yes, we can't risk losing a plane without a good reason, let alone losing a pilot. Pilots take years to make. They absorb all the finest achievements of science, culture and technology. When we began the revolution, we had no planes, but now we do have them. Did I ever think that I would change my horse for a plane? But I was sent as commissar to an air unit. Could I have refused? I am a Bolshevik. The Party has set us the task of creating a first-class air force and we, Communists, must be at the forefront...."

Ivanov suddenly turned to the people coming out of the hall and called quietly:

"Anna!"

When the girl came up, he introduced Anton to her:

"Anna, this is Gubenko. Have a talk to him. I must go. Excuse me."

"Good evening, Comrade Gubenko," said Anna, putting out her hand.

"Good evening." Gubenko got up. "Anton, Anton Gubenko."

"I've heard about you. A lot of things—good and bad. People don't bother to talk about ordinary folk. They say you're a talented pilot."

"Oh, come now, Anna. That's not true."

"Perhaps it isn't. I don't know you. That's what they say about you. I like talented people."

"So you know a lot of them, do you?"

"No, not many. I think you're the first."

The girl was self-assured, perhaps because she was so pretty. But he was embarrassed and did not know what to say. Anna had appeared so unexpectedly and he found her very attractive.

Anna looked at him rather teasingly.

"Will you tell me some of your secrets?"

"Yes, later."

"But I want to hear them now, today."

"I can't tell you them now."

"You can't?"

"I won't."

"Why not?"

"I'll have to think about it. Have to be careful with the likes of you," Anton joked.

Gubenko thought about the commander's words. He tried to assess them and come to some conclusion. Perhaps he really did fly for himself. No. But people might think so, because he was so anxious to get ahead. Of course, he had pride and self-esteem and ... goodness

knows what else. He must tell the commander about his plans. Would the commander help him? Anton remembered how he had made a forced landing recently because he had not checked the petrol tank, not opened it before take-off. The fuel that remained in the carburettor and the shock-proof tank had run out, and the engine had flamed out. There was no damage, the cause was found, and Anton had flown that day after all, but after flight analysis Ivanov had ordered him to be detained for carelessness and negligence, without taking into account the excellent flight results....

"Still the commander is right," Anton thought, remembering how he was sometimes irritated by unexpected orders and changes in the daily schedule due to weather conditions. On such occasions he became rude and short-tempered. Why? He was engrossed in his own affairs, the realisation of his plans, and something had interfered with them. All that must be changed. Learning to fly was the main programme for the year.

Events intervened unexpectedly to put things right. Anton was summoned by the squadron commander. The conversation began with a subject which Gubenko had certainly not foreseen.

"Anna keeps asking about you," said Ivanov. "I tell her what I know, but probably it would be better for you to tell her about yourself."

"Perhaps. But I ... have decided not to meet her."

"That's up to you, of course, but why?"

"She's very pretty."

"Well, that's good."

"No, it's bad, because I'm not very good-looking."

Ivanov laughed heartily.

"Well, you get on with it. Fight for her. But anyway you won't be able to give her the slip. She is pretty, but I wanted to tell you that she hasn't had an easy life. She was one of a large family. Her father works on the railway. A brave man. He was a partisan. I got to know him through partisan work. They are an old Far East family, hard-working, robust people."

Anton thought about Anna. He had fallen in love with

her, although he would not admit it even to himself. He avoided seeing her, but fate brought them together again. They met by chance in the town.

"Anton!" exclaimed Anna, delighted to see him. "I haven't seen you for a whole month."

They spent that Sunday together and got married a month later.

III

In autumn 1931 as a top pilot Anton Gubenko demonstrated his flying skill at district competitions. It was there that he met Anatoly Serov. This meeting marked the beginning of a long friendship. For his fine results in combat training he was made flight commander. In his testimonial on Gubenko, detachment commander Captain Firsov wrote: "Stubborn, proud and impressionable. Has a good, strong will. Resolute in action. Has done a great deal of successful work in training the flight and shows great concern for his subordinates. No cases of lack of discipline in the air, which was frequently observed before. Has good theoretical knowledge of engines and aircraft. His flight has a 'distinction' for aerial gunnery training. Sets a fine example in flying technique and gunnery training. Parachute instructor. Well-suited to the post of flight commander which he now holds. Could be recommended for the post of detachment commander in due course."

Everything seemed to be going well, when suddenly....

Ivan Frolov's plane had an accident. Flight commander Senior Lieutenant Gubenko was said to be responsible for it.

The matter was discussed at a meeting of the Young Communist League group.

Somebody proposed that Anton should be expelled from the Young Communist League. The discussion grew heated, as people argued "for" and "against".

Anton listened with bowed head, unable to believe that it was about him, that his fate was being decided.

"Gubenko gives himself airs. He is arrogant with his comrades and rude to his superiors. He does not respect the official schedule for combat and political training. He has tried to impose his own schedule, to disrupt the established routine, and thereby to hinder the development of flying skills and combat readiness. We are all familiar with the situation in the Far East. The recent incident on the Sino-Eastern Railway demands that we be vigilant."

Next to speak was Pekarsky:

"He possesses some good qualities which the Young Communist League has managed to cultivate in him, evidently in spite of his inner resistance. But here we are dealing with his shortcomings which affect both him and us...."

Petrenko shouted from the back:

"I shall speak. I feel I must." He was very agitated. Big and powerful, he marched to the front with a militant air. "This whole business looks as if it has been rigged up by an enemy or a fool. Quiet! I am not defending Gubenko or his honour, which is beyond reproach. I am defending Soviet aviation, the pilot's right to experiment, to be free to develop his combat potential. He, Gubenko, is not fighting for himself. He is a great pilot, and he will prove it over and over again. The whole country will know him.

"People here have said that Gubenko is hindering our work. Hindering it? If he flies better than all of us, is that hindering it? I just don't understand it, so help me. What does being the top pilot mean then? Gubenko represented our unit at the district competition and came second after the famous aerial combat master Serov.

"Gubenko was the first of us to master the technique of low altitude flying. And did he ever refuse to help anyone? Some people here used to say that the higher a fighter plane's speed, the more difficult it is to fly. Gubenko was the first to prove that this was a false assumption. Not so long ago a horse could outstrip a plane.... Anton wants to outstrip the birds, then sound...."

There was an uproar: "Well done!" "More hare-brained rubbish".

"Let Gubenko speak!" came shouts from the audience.

Anton stood up. There are times when all the trials and tribulations of many months come to a head. Everyone was looking at him, he could feel their eyes on him. He must show no sign of weakness.

"I should probably not deny the shortcomings ascribed to me," he said quietly. "It would be easier to admit them, to agree with them. But I am a Young Communist. I love my country. And I believe in the unlimited potential of our aviation. For this reason I refuse to say that the criticism is justified. As long as my hand can hold the wheel, I shall remain in aviation and perfect its tactics...."

A few months later he was summoned to Moscow.

In May 1934 flight commander Senior Lieutenant Gubenko was transferred to a new air squadron. The first comments on his early days there have survived in the archives.

"Our new commander Anton Gubenko turned out to be a remarkably calm and even-tempered person. You could sense his self-discipline and strong will. We had not yet seen him fly, but had heard about his skill.

"Our flying technique test began. With each flight we grew more despondent, feeling that this man from the Far East was turning us into mere novices, although we were actually pilots in our second year of service. Gubenko took us in hand with real creative enthusiasm."

"B. Smirnov, Hero of the Soviet Union."

IV

Gubenko saw the New Year of 1935 in with his mentor, the famous pilot Captain Serov. Aviators, designers, test pilots and research workers gathered in the large two-storey house. These people were the pride and hope of Soviet aviation. They devoted their lives to increasing the combat power of the Soviet Air Force.

It was here that Gubenko first heard about the scientific research that was being carried on in the Soviet Union to produce jet engines. Anton loved his I-4 and

I-5 planes, but now people were saying that these aircraft were a thing of the past and that there were fighter planes that could do 500 kilometres an hour or more.... The conversation was about heavy aircraft with two or four engines, capable of lifting several tons into the air. Anton was fascinated and excited. He thought with a grin about the research he had done on the combat potential of fighter aircraft. All on his own. But here was a whole institute with a vast staff in constant touch with designers, design offices, factories and the commissariats. They were carrying on coordinated research, setting up combat standards and shaping the future of aviation.

Here too Gubenko first heard of Polikarpov's I-16, which was to place him among the top fliers. But for the time being Anton played the part of a fascinated listener, sitting on a couch and drinking in every word.

They were waiting for Valery Chkalov.

Chkalov had recently left the Institute for the aircraft factory. He was testing Polikarpov's planes. Chkalov was loved and respected by everyone. He personified all that was best in aviation. Due to unforeseen circumstances Chkalov did not come that evening.

Several days passed. Gubenko's mind was still full of what he had heard on New Year's Eve. Serov arrived unexpectedly.

"Chkalov's testing the I-16," he said. "It's a splendid plane. It will soon be manufactured and supplied to Air Force units. So it will need service trials.

"I want to recommend you. If Chkalov gives his support, everything will be alright. Come with me."

In the car he told Gubenko:

"Let's go and see Chkalov."

Chkalov was not at home. His wife Olga told us that he might have gone to see Maxim Gorky at the editorial offices of the journal *Our Achievements*, but that it would be best to wait for him to come home.

Serov thanked her and took Gubenko aside.

"Let's go and find him, Anton. We can't afford to lose time. Time is the speed which brings you to a new plane. The country needs new high-speed aircraft. The I-16 is a

splendid achievement by Polikarpov and our aircraft industry."

Chkalov was not at the editorial offices. He had left a few minutes ago. They were just leaving, when someone called to Serov:

"Anatoly!"

"Alexei!" Serov exclaimed delightedly, recognising the writer who was walking towards him along the corridor. "I came to find Chkalov, but he isn't here."

"He was, he was. As large as life," said Alexei Tolstoy with his distinctive way of talking. "Keen, indomitable, tempestuous as ever. A most striking character. A truly colourful figure. As the proverb says: 'Look not at the pitcher, but at what is inside it.' That goes for Chkalov. A profound man. A thinker and philosopher. A colossus. And who might this proud falcon be?" Tolstoy pointed his cane in Gubenko's direction.

"I'll tell you in confidence: a brilliant pilot. The Chkalov of our day. You don't believe me? Well, see for yourself. Anton!"

Anton came up, embarrassed.

"How do you do. Anton Gubenko."

"How do you do. I've been told that you are the Chkalov of our day. Two Chkalovs is too many! It's enough to have two Tolstoys. The first is always a great phenomenon. The second seems like an imitation, a pathetic farce. Be Gubenko. Gubenko! It has a splendid ring. There's an eating-house not far from here, my friends. A nice little place with real Russian tea. Shall we sample it?"

At the table Tolstoy was silent. He listened to the pilots with great interest, inserting the odd word and occasionally asking questions. He wanted this new young senior lieutenant, to whom he had taken a liking, to talk.

"Splendid!" exclaimed Tolstoy, after hearing the story of Anton's forced landing. "Well, and what else...."

"What else: a pilot must fly. A pilot needs new planes and the freedom of the sky. I find it difficult to get used to a new plane at first, but later it's all right. I begin to get the feel. And I gradually seem to fuse with the plane. Its

wings are my wings. Its engine is my energy. The plane and I are one."

"My goodness! Did you tell me the truth, Anatoly? He sounds like a writer, not a pilot!" Tolstoy exclaimed. Anton laughed happily.

On the First of May, 1935, Valery Chkalov flew the I-16 over Red Square. After the parade Party and Government leaders went to the aerodrome. They talked to Chkalov. He answered their questions calmly and sensibly, although he was very excited. They were pleased with him. He had the gift of charming people with his sharp wit and original remarks. On May 5, *Pravda* announced that Chkalov was awarded the Order of Lenin.

At the end of May Chkalov and Serov came to see Gubenko.

The Gubenkos were not expecting visitors. Anton was reading and Anna had taken four-year-old Kira for a walk. Chkalov walked round the flat, examining the books carefully and gazing for a long time at a portrait of Pyotr Nesterov. Then he turned and looked at Gubenko. Anton sensed approval in his rapid glance.

"I understand you," Chkalov said. "And advise you to get to work. Polikarpov's planes are special ones, and he is special too, a great man ... and easily hurt. You'll be meeting him soon."

Gubenko had not met the designer and was unaware of the controversy which had placed up around his new plane. Chkalov knew the fighter inside out and was all for it. When he heard that the plane had been rejected, he went to the committee and defended it. The plane entered the last stage of testing. This fast little plane with its strangely shaped wings, fuselage and tail unit has surpassed all its rivals in speed and manoeuvrability. In its latest version with an M-62 engine it developed speeds of up to 480 k.p.h. The plane could reach an altitude of 5,000 metres in six minutes and its ceiling was 9,200 metres. It was the first fighter aircraft in the world to be equipped with two 100-kilogram bombs as well as machine guns and other artillery. The pilot's back was protected by an armour plate.

Such a fighter plane was a pilot's dream in those days.

The service trials consisted of a large number of complex exercises. Apart from the combat set, each plane had to perform six hundred acrobatic manoeuvres and two hundred landings.

Boris Smirnov, a pilot from Anton Gubenko's detachment wrote about those days:

"Gubenko was in the air. He had gained the necessary altitude. The plane dived and began looping the loop. We counted: one, two, three.... After the tenth loop the plane levelled out. A minute's rest, then it did rolls from the edge of the airfield along the start line. The plane landed, taxied a little way along the runway, then took off again. This was the beginning of a series of flights and landings, which made it possible to speed up the trials considerably...."

One day in the summer Nikolai Polikarpov arrived at the airfield where the trials were taking place. He met Gubenko and the other pilots in his detachment, watched the I-16 flights, and was pleased with them.

The plane passed all the complex trials with flying colours and was recommended for serial production. The detachment's work had been most successful. But the men were tired, and now it was time for manoeuvres. Gubenko's detachment received a combat exercise. The ten days of test flights were not only successful, but also resulted in Gubenko's detachment being judged the best in the Moscow district.

The head of the political department of the Moscow military district, commissar Veklichev, requested a testimonial on Senior Lieutenant Gubenko to be in the Air Force Book of Honour. The Air Force High Command requested the People's Commissar for Defence of the USSR, Marshal Voroshilov, to recommend A. Gubenko for a Government award. Voroshilov wrote: "I agree. Suggest an appropriate award."

At this time demonstration flights of the I-16 were being organised. The high-speed fighter aroused admiration, mistrust, bewilderment and envy. Again some people started saying that you could not fly at high speeds without

the plane going into a spin. Anton Gubenko and a group of pilots from his detachment flew the plane on the round trip Moscow-Gorky-Leningrad-Moscow, demonstrating its splendid tactical qualities. On the way the crew had meetings with the personnel of air units, schools and flying clubs.

The eventful, exciting year of 1935, which had brought Senior Lieutenant Gubenko so many fine achievements, was drawing to an end. In his testimonial on Gubenko the squadron commander and commissar Kurdubov wrote:

"Comrade Gubenko is in his second year as acting detachment commander. At present he commands a detachment which is testing the I-16. The detachment is well coordinated. An excellent fighter pilot himself, he is successfully developing these qualities in his subordinates. An excellent parachutist. Energetic, daring and fond of experimental flying and parachuting. Capable of carrying out the most responsible, complex and dangerous flying missions.

"He should be included in the list of candidates for experimental flying and parachute work. Particularly for work at high altitudes.

"It is recommended that he be confirmed in the post of detachment commander. Bearing in mind his special interest in experimental flying he may be used as a pilot in the Air Force research institute."

Moscow. Anton's elation and excitement did not abate. He wandered around the town and the parks, and went for boat trips on the River Moskva. He wrote enthusiastic letters home to his brothers and sisters, telling them about Moscow, the rapid pace of construction there, and the fine and happy life.

The head of the brigade's political department Kotov informed Gubenko that a journalist called Yevgeny Tsitovich was coming to write an article on the best pilot in the brigade. The brigade commander and Kotov considered him, Gubenko, to be the best pilot.

Tsitovich arrived three days later.

"Alexei Tolstoy sent me to you," he said to forestall a possible refusal. "You continue working and flying as usual. I'll just walk around, watch and write."

Tsitovich walked around, watching—but not writing. He was stunned by Gubenko's brilliant flying, impressed by his erudition, but totally confused by his contradictions, his endless ideas and what the journalist regarded as his hare-brained schemes. Tsitovich refused to write anything. Alexei Tolstoy was angered by the journalist's lack of understanding of the role and importance of aviation and of Gubenko's contribution to it.

"Just listen to what the young stripling is saying, Valery," said Tolstoy excitedly, addressing Chkalov. "He can't write it! We need striking, outstanding personalities. We must produce thousands like Valery Chkalov. And we already have them. Today's record-breakers are tomorrow's fighters. Fascism has already gained a foothold in Europe. The snake may want something else tomorrow...."

"Perhaps he deserves praise rather than blame, Alexei," said Chkalov, coming to Tsitovich's defence. "He is aware of his capabilities and is refusing because he realises the impossibility of carrying out the task."

So Tsitovich went back to the brigade.

Again he walked, watching—but not writing anything.

He telephoned Tolstoy for permission to come and see him that evening and discuss the matter. To his surprise the response was a friendly one.

"It's good that you rang. Come over straight away," Tolstoy said.

Tolstoy greeted him warmly. He was not angry or indignant. He realised that Tsitovich was prepared to do his best.

"I spoke to Gorky about your prospective article," Tolstoy said encouragingly. "He is very interested. He promised to publish it in *Our Achievements*. So get on with it. And, you know what? Start by making Gubenko talk. He's an excellent talker, I must say...."

V

It was an ordinary day in May 1936 with the usual flying programme. Flight technician Kostyuchenko saw Gubenko coming in to land and rushed up to the taxiway.

"Comrade commander!" he shouted, trying to make himself heard above the noise of the engine. "They've announced on the radio that you have been awarded the Order of Lenin. Congratulations!"

Anton stared at Kostyuchenko incredulously. Awarded the highest order. But why? He had not performed any act of heroism, flown to the North Pole, or saved the Chelyuskin crew. Why?

Anton took the plane up again, for the day's mission was not completed. There he gave vent to his feelings, performing acrobatic figures that he would never have allowed himself to do in the most daring moments at the start of his flying career. So the sky and his plane were the first to learn of his joy.

Congratulations flooded in from all sides: from Kacha, his native village, and the Far East. They came from devoted admirers who believed in Anton's flying talent and from people who did not understand his rebellious and questing spirit.

Serov, Chkalov, Kokkinaki, Laktionov, Stefanovsky, and Bakhchivandzhi came to see him. He was pestered by journalists. Anton refused meetings, talks and interviews, but he could not refuse Tsitovich, who deserved attention for his patience and desire to gain a deeper understanding of a pilot's life.

They had their first talk.

"You ask the questions and I'll answer them," Gubenko suggested. "Alright? But it's hard for you to ask questions. Well, then, I'll talk and you ask questions if you need to...."

Anton recounted everything, going right back to his family tree which was rooted, like an oak, in Russian soil, but which, eaten away by adversity and nourished by bitter juices, had shed its leaves early and wilted....

The village of Novo-Apostolovka where he was born was part of a system of soldiers' homesteads and had been formed at the end of the 19th century out of retired soldiers from the tsarist army. The Russian autocrat had graciously permitted them to settle the Novorossia lands (in South Ukraine), cultivate them and raise families. Prokofy Gubenko, a former private, also settled here. He was the founder of the Gubenko family which was to render its country a great service.

By the time Alexei, Prokofy's son, set up on his own they had a house, a horse, a cow and a wooden plough. Then famine came and drove Prokofy to seek seasonal work in Tauris. He came back a sick and broken man. The tiny plot of land and poor household went to his son Alexei. He, like his father, devoted all his strength to the land to earn a living. But his labours reaped little reward. Bitter and despondent, Alexei vented his anger on his wife and children. He went through life, crushed and dispirited, with no faith in his own powers or in his children.

His wife Natalya was hard-working and kind. She was able to understand her children, their innermost thoughts and needs, and with her quiet, calm voice she made them believe in their powers. But her faith in them, in their happiness and better life, was even greater. She did not tie them to the land, although she respected it no less than Alexei did. "The eye sees what is close at hand, the ear hears what is far off," she would say. She had heard of a new life, and so she let her children go away to the town, to the new life of which she knew nothing.

So Tatiana left home and became a schoolteacher. Then Anton went too.

"I was fourteen," Gubenko said, "when I heard in the village school about a school of pilots. Without telling anyone I wrote a letter to the Chairman of the Central Executive Committee of the Ukraine, Comrade Petrovsky, begging him to let me enter such a school. Today it seems a most impertinent thing to have done, but at the time I thought nothing of it," Anton laughed. "A few weeks later I was called to the Village Soviet and solemnly

handed a letter from Petrovsky, in the presence of the awed villagers. I rushed off to my sister with it, reading it over and over on the way. The letter told me to be patient. I learned that I could not be admitted to a flying school for some time because of my age, but that in the Land of the Soviets all paths were open to the rural youth. For the moment I should educate myself at school and in the Young Communist League. Everything would come in good time. I carried the letter around with me, like a talisman, for a long while, showing it to no one but my closest friends...."

The talks continued every day. Or rather, Tsitovich would come and sit on the creaking old couch, get out his notebook and pen and wait. Anton would walk up and down the room, head bowed, thinking, reminiscing, and picking out what he regarded as the most important things.

"I remember my first flight clearly. I couldn't sleep the night before and lost my head completely. I saw the joystick, the dream of my life, and forgot what to do with it.

"'Get ready,' the instructor said into the gosport. 'I'm handing over the stick. Keep the plane's nose level with the horizon. Easy does it. Not so hard. Don't upset the plane....'

"But it was upset. The nose, which I was supposed to be keeping level with the horizon, kept soaring up or plunging down. The plane jolted, reeled and shuddered, and the harder I pressed the stick, trying to level it up, the more obstinately it leapt about.

"'Your movements are too jerky,' continued the instructor. 'Give the plane time, let it relax. More softly, smoothly. You're too stubborn!'

"'I'm stubborn? What about the plane? It's jumping about like the very devil,' I shouted, forgetting that the instructor could not hear me.

"The flight was sheer torture. My cheeks were burning with shame. I climbed out of the plane and waited for the harsh verdict. But to my surprise the instructor gave me a friendly look.

"'Not bad. You managed to keep it more or less level....'"

One day Tsitovich arrived with a manuscript. Anton read it out aloud. He liked the article and praised Tsitovich. But when he reached the last page he saw his own name at the bottom.

"What's this?" asked Anton.

"The author's signature."

"You're the author, not me."

"I can't be the author, I've hardly done anything. This is a record of what you told me."

"Don't argue with me. I might come in useful to you some time. You are the author."

"It's a question of honour...."

"What about my honour? I'm a pilot, a fighter pilot. You have done me the honour of writing about me and ... Anna, why isn't there anything on the table? This calls for a drink. Do you realise what a fine job you've done, Comrade Tsitovich. Pilots will be very grateful to you."

Next morning Tsitovich placed the manuscript on Alexei Tolstoy's desk. After reading it through, Tolstoy gave the nervous Tsitovich an approving look and wrote in his own hand: "A. Gubenko, Y. Tsitovich."

"Thank you, my friend, you have lived up to my hopes. What a pity Gorky will not know that his order has been carried out."

VI

For some unknown reason flying had been cancelled. The Chief-of-Staff read out some names from a list and asked the men to report to headquarters immediately. The pilots and technicians assembled in the preliminary training room, talking in undertones: flying had been cancelled—why the urgency, everyone's papers had been checked—why the secrecy?

An unknown colonel came in accompanied by Kurdubov and the Chief-of-Staff.

"Comrade Commanders," said the colonel, "I have

been asked to inform you that the Soviet government has decided to render assistance to the people of China in their struggle against the Japanese aggressors. We shall supply the Chinese army with aircraft, tanks, vehicles, machine guns and rifles. We have received permission to send to China pilots, technicians, and air fitters who volunteer to go there. I appeal to those present...."

Captain Gubenko was the first to rise.

"Put my name down."

"Don't be in a hurry, Gubenko," said Kurdubov affectionately. "Talk it over at home and tell us in the morning."

"I have already informed you of my decision," said Gubenko with his customary firmness.

No one needed to be persuaded. The pilots had known for a long time that the Chinese people was waging a war of liberation against the Japanese aggressors and that the Soviet Union, true to its internationalist duty, was rendering disinterested assistance to China.

"Very well, Gubenko," said the commander, frowning. "I don't want to let you go. But I cannot stop you...."

They were given three days to get ready. It may seem a lot, but when you are going to a distant, unknown country where there is a war, it is not very much. Why the devil couldn't he stop thinking about Kurdubov? Things would be easier for him now that the disobedient detachment commander was going away. But Kurdubov thought differently of Gubenko. He was an outstanding pilot, devoted to his job, this Gubenko. A man with a purpose, but still immature. Kurdubov was, perhaps, the first to understand Anton Gubenko. He understood him and remained firmly opposed to people idolising him. Having finally realised that Anton would not be at the morning check tomorrow and not come to the flying, Kurdubov again regretted not having dissuaded him. Gubenko's questing spirit, courage and indomitable desire to fly fired others with enthusiasm and inspired confidence in new aircraft.

Anna greeted the news with outward composure. What could she do about it?

"I shall not write to my relatives, Anna," said Anton, pacing up and down the flat. "I don't like writing letters, they know that. Get Kira everything she needs. And buy yourself some new clothes. Go and spend the summer with mother."

"What are you talking about, Anton," Anna exclaimed. "What new clothes? You're going away to fight, and I'm supposed to think about new clothes...."

"Not to fight. To help and teach."

"It doesn't matter what you call it. You'll be shot at."

"Nothing will happen to me. I have faith in myself and my plane. I'll come back in one piece...."

In the morning Kurdubov met Gubenko at headquarters and said:

"Don't waste time. You need not settle your accounts now. You are on the squadron lists forever. We'll see about it when you get back."

"Thank you. I'm sure I will come back."

On the way to Moscow Anton paid a visit to the Executive Committee of the Town Soviet. The chairman of the Soviet received him at once. Gubenko explained that he would be unable to attend meetings as a Deputy to the Town Soviet for a while because he was going away on an important mission.

They left in the afternoon. Ahead lay the long train journey to Alma-Ata and then a flight on military aircraft to the Chinese town of Hankow.

The commanders who were in charge of the new aviation group of volunteer pilots in China had left for Alma-Ata the day before. They had to coordinate their operations with Zalevsky, head of the air route, and also with the head of the land route. The TB and SB planes were being flown from Alma-Ata to China, but the I-15 and I-16 fighter planes were being transported overland in containers. Both the air and land routes were difficult and unfamiliar. They had been set up and opened to traffic in harsh conditions by Soviet people who showed courage and heroism in their effort to render assistance to the fraternal Chinese people.

It was spring. The snow was beginning to melt in the

struggle against the decisions of the Paris Peace Conference which were fettering for China. Newspapers reported the details of the student demonstrations. Among the leaders Sun Yat-sen found the name of Li Ta-chao. At Sun Yat-sen's request he was introduced to Li Ta-chao, a teacher at Peking University. Sun Yat-sen suggested that he should write for the journal *Construction* and take part in the revolutionary struggle. Li Ta-chao agreed. Since then the journal had printed and reprinted many articles by him. In April 1921 the Parliament unanimously elected Doctor Sun Yat-sen as President of the Chinese Republic.

In November 1922 the head of the Soviet diplomatic mission Ioffe met Doctor Sun Yat-sen and had a long talk with him. The doctor was interested in everything: the Bolsheviks' allies in the revolution, the power structure, the relationship between state and Party organs, and the organisation of the army. He, in his turn, told his Soviet guest about his desire to reorganise the Kuomintang on the Russian pattern and have the peasants and workers as allies, and his intention to send a military and political delegation to Moscow to reach agreement on assistance to the Chinese revolution.

"Our eyes are fixed on Russia," said Sun Yat-sen. "From now onwards the revolution cannot be successful if we do not follow Russia's example.... We must learn from the Russians. If our party does not learn from the Russians, it will not be victorious."

In October 1923 B. A. Borodin, who had been appointed political adviser to the Kuomintang at Sun Yat-sen's request, arrived in Canton. In order to continue the revolution a political party closely linked with the people was essential.

On January 20, 1924, the Kuomintang opened its historic Congress in Canton. Not everyone wanted collaboration with the Land of the Soviets and the Chinese Communists. But Sun Yat-sen insisted and used his authority, speaking several times at each of the sessions. He was supported by Li Ta-chao.

In May 1924 corps commander Pavel Pavlov, a talented Soviet military leader and a very brave and

highly educated man, who knew five foreign languages, arrived to be the President's military adviser. Pavlov worked out measures for reorganising the army and helped set up the Council of Defence. In July 1924 the Council of Defence had its first meeting, at which it discussed Pavlov's proposals. The proposals were accepted with no amendments. Sun Yat-sen appreciated Pavlov's help. Pavlov became the President's personal friend.

Anton listened to the unfamiliar pages from the history of the Chinese people, the remarkable facts and happenings. He was about to be initiated in all this, to become a participant in the great struggle for the national independence of the Chinese people.

In Hankow—their destination—the Soviet pilots were met by the Military Attaché Colonel Zhigarev and also representatives of Chinese military and local organisations. The short meeting was followed by a formal dinner and a rest.

Work began the next day. Combat assignments were drawn up and studies and military training were planned.

Blagoveshchensky, an experienced pilot with an excellent training and a brilliant knowledge of foreign aviation, was immediately at home in the role of squadron commander. He flew almost every day, impressing everyone with his bold and original tactical manoeuvres. He regarded Anton Gubenko as his active helper, consulted him on every plan, and always included him in the strike group.

That day Blagoveshchensky had taken the fighters out to meet some enemy bombers. The Japanese were used to flying deep into the Chinese rear with impunity. Their tactics had become routine, without any operational rearrangement; they did not even carry out any regular air reconnaissance. The Japanese command had not expected that the Chinese would be ready for military operations so quickly.

So a large group of Japanese bombers under fighter cover was on its way to bomb a Chinese town. Suddenly they were attacked on all sides. The accompanying fighters were forced back and completely forgot about

can and British planes. The Soviet pilots took no part in these arguments. Then the discussion took a most unexpected turn: it was decided to hold competitions of Soviet and British planes. Only Chinese pilots took part in them—on Soviet I-16s and I-15s and the British Gladiator.

Interest in the competitions ran very high. A single programme for all planes was drawn up and widely discussed. Among the crowds of many thousands which gathered in Hankow there were many, of course, who hoped that the Soviet planes would lose, but the majority, particularly the ordinary people, were on our side.

The results of the competitions were staggering. The following day the Chinese newspapers wrote: "The Russians won easily. The superiority of Russian over Western technology is indisputable. The speed of the I-16 is 95km greater than that of the British Gladiator. The flying performance of the I-16 was exceptionally good and showed the Soviet Union's overwhelming technological superiority."

After the competitions no one tried to dispute the advantage of Soviet planes again. The Chinese pilots gained confidence, morale rose, and preparations for offensive operations began.

Soviet military leaders knew that the Chinese army was not ready for large operations. But there was little point in trying to restrain the urge to launch an offensive. For a long time Chinese units retreated, surrendering their territories, suffering heavy losses in killed and wounded, and abandoning equipment on the battlefield. Then came a regrouping of forces, concentration of troops on the main line of attack, and training for big battles. The Japanese army in China was increased to 750,000 and the Manchurian force was over 300,000.

No enemy planes were appearing over the airfield. It had been quiet for many days. The pilots, impatient young fellows, had been sitting round the pond on the edge of the airfield since morning, gazing longingly at the signal mast in the hope that the signal flag would suddenly be hoisted....

The signal seemed to burst out of the ground and flutter over the whole aerodrome.

"The alert!"

Captain Gubenko's flight left the ground immediately. Whipped up by the aircraft, the water was still lapping over the grass, when the three planes disappeared into the clouds.

Six enemy aircraft appeared and the battle began. Anton "took aim" at the tail of an enemy plane. Dodging away, the plane made a desperate attempt at a head-on attack, but suddenly froze. Gubenko fired a long burst, and it fell to the ground with upturned wheels.

Kravchenko's flight took off, because a whole armada of enemy planes had suddenly appeared. Thirty against seven Soviet aircraft.

The moment that the enemy plane hit the ground, Kravchenko saw that he had five fighters on his tail. And there was Anton zooming to his aid. In an instant Gubenko had climbed above the five enemy planes. He attacked them from the rear and they dispersed. The path was clear. Captain Gubenko had got his friend out of trouble, but he immediately came under heavy fire himself. Kravchenko sped to his aid, but it was too late: his friend's plane was falling with upturned wheels. Gubenko bailed out. His parachute had hardly opened, when three enemy planes began firing at him.

Kravchenko's plane roared into the attack. In the meantime Anton had tightened the shroud lines and was plummeting to the ground. Kravchenko circled above him, firing his machine guns to ward off the enemy. When the captain had landed on the ground Kravchenko zoomed up into the sky....

On the Emperor's birthday (April 29, 1938) the Japanese command decided to launch a mass attack on Hankow aerodrome—the Chinese air base. They sent thirty-three bombers covered by twenty-one fighters. The Japanese bombers were met by sixty fighters. The battles that ensued covered a large area and were on a scale

previously unprecedented in the Chinese sky. The Japanese lost 21 aircraft.

The operation, which was supposed to be a present to the Emperor, had turned into a requiem. The Japanese decided to take revenge. On May 31, 1938, they raided Hankow with 18 bombers accompanied this time by 36 fighters. But again they were unsuccessful and lost 15 planes.

In this battle Anton Gubenko did a ram, the first in the history of aerial combat after Nesterov's famous ram.

Anton described it after the battle:

"I had used up all my ammunition and the machine-guns were empty. Suddenly I came across an enemy plane that was lagging behind its group. The thought flashed across my mind: why not force it to land? I wanted our air designers to have the chance of studying this Japanese fighter which was a pretty good one.

"The Japanese pilot did not see me approaching until the last moment. This enabled me to come up as close to him as if we were on a parade. For a few seconds we looked at each other. His eyes bored into me. I motioned to him to turn back onto our territory. The Japanese replied to the invitation by shaking his fist and did a split-ess. This sharp manoeuvre was to be expected, but the Japanese plane is not quite so fast as ours, particularly when it is diving.

"After performing a few more useless figures, the Japanese put his plane in horizontal flight. I repeated my demand. His black moustache curved in a malicious grin. He had guessed that I was out of ammunition and calmly proceeded to make his way home. I had to think what to do next. Should I just let him go? No, that was too risky. The Japanese was no fool. He was waiting for me to turn back to base so that he could put several rounds of machine-gun fire into my back. I decided to touch his wing gently with my propeller. My nerves were keyed up. I had to make a short run forward before the Japanese realised what was happening. The blow hit the aileron of the right wing. The enemy plane lost control and rocketed to the ground. All I had was a slightly bent propeller blade."

Anton Gubenko's ram produced the most varied reactions.

The next day the Chinese command expressed its dissatisfaction with a squadron of the United States Air Force, which had been invited to take part in the struggle against the Japanese aggressors. The squadron gave daily demonstrations of its virtuoso flying over the aerodrome, but did not engage in a single combat.

News of Gubenko's ram reached Japan and the Emperor asked for a full dossier on the Russian kamikaze.

The kamikazes are Japanese death pilots trained to make one suicidal crash attack, men blinded by the divine power of the Emperor, yet they had never performed an aerial ram.

VII

Anton awoke early. He opened his eyes and looked around: everything was in its place, as if he had never been away. Through the tulle curtains he could see the flushed horizon and the warm blue sky. A peaceful sky.... Anton got up, put on his pyjamas and shook his head: the gaudy things people wear these days. He went into the other room, walking noiselessly in his slippers. Seven-year-old Kira was sleeping in a big bed—she had so wanted Daddy to see how grown-up she was now—firmly hugging her many presents. Anton stood for a moment, smiling, then, after making sure that Anna was still asleep, he went into the corridor. He wanted movement. He was thirsting for action.... He looked for his uniform, then gave up and opened the door quietly. To his surprise he found a Red Army man by the door. The young lad was sitting on a bench, hunched up in the early morning cold. At first Anton thought it strange that the soldier should be sitting here at such an early hour, then he felt like a talk. It was a wonderful morning, he was thirty years old, the war was behind him, and he had come home. Life was great.

"Good morning there," Gubenko said cheerfully.

"Morning," the soldier replied reluctantly.

"Why are you about so early? Or have you been posted here?"

"No. I've been told to install a telephone. I'm waiting for Colonel Gubenko to wake up."

Anton stood stock-still with surprise.

"Colonel?"

The soldier stared at him in amazement.

"Don't you know the colonel? In flat seventeen. I'm waiting to install the phone."

"You needn't wait," Anton smiled. "He's awake. Go and install it."

"Alright."

The soldier picked up his bag and went into the entrance. Anton watched him go.

"Colonel!" He was never at a loss in combat and always found the right tactics, but now! "Colonel".... He suddenly remembered that his wife was still asleep and rushed after the soldier.

The telephone rang. The first calls are always pleasant. They don't irritate you. Anna picked up the receiver.

"It's for you, Anton."

"Me?" Anton queried for some reason, then restrained his excitement and answered: "Captain Gubenko here."

"Hello, Anton." The voice was a familiar one. "Congratulations, Colonel Gubenko." The voice was obviously speaking in a large room. "Get ready quickly. A car will arrive for you in a few minutes. Bring your family and come over to my place."

"Anatoly? Good morning!" Gubenko shouted joyfully, recognising Serov at last. "Thank you. I can hardly believe it. I'll tell you everything when I see you."

As already mentioned, they had met in the Soviet Far East at a district pilots' conference. It was there that Lieutenant Serov had talked about his theory of fighter aviation.

"I maintain," he had said, "that fighters, like bombers, can carry out bombing strikes, attack ground forces and

targets. And to assign them the purely auxiliary role of escort and cover is profoundly mistaken. The fighter has both speed and manoeuvrability, so its combat potential is unlimited."

Anatoly Serov was about the same age as Anton, but he was already a flight commander, an innovator, and a pilot known throughout the district. The meeting was memorable for both of them. It marked the beginning of their friendship.

Now Serov was a Hero of the Soviet Union and held the rank of brigade commander, and Gubenko was made a colonel.

Serov had guests. As always, a lot of pilots, actors and writers.

"Anna!" he exclaimed delightedly, greeting Gubenko's family. "Anton's a lucky man. All Ukrainians are lucky. Kravchenko too.... This is for you, Kira," he said to the little girl, handing her a teddy-bear.

Serov could jest and then say something very important and practical immediately afterwards. With joking and laughter he drew Anton into a small room and sat him down in an armchair by the bookshelves.

"Anton," he said, seriously now, "the government has been considering the question of sending all pilots with combat experience to the Armed Forces. The main postings are west and east. You will all get leave now, with holiday home accommodations for you and your families. Yes. It's a tense situation. The sooner you return and get down to work, the better. A posting will be found for you while you are on holiday."

"I see," Anton got up. "I am ready to go to my new posting at once."

"Sit down. Don't be in such a hurry." Serov smiled. "I know you want to study, but the Academy can wait. Fascism is stealing up to our frontiers. Today you will all be received by the People's Commissar for Defence, Marshal Voroshilov. Stalin may be at the meeting too. Incidentally, you must congratulate Grigory Kravchenko. He's been made a major."

The door opened and Anna walked in without

knocking.

"Excuse me, but your absence is suspicious. If this is a conspiracy against women, it's nothing new, but if you are about to fly off somewhere again, we must be told so that we can do the packing."

Serov laughed.

"This time it is a conspiracy against wives and the enemy."

"It's flying again?" asked Anna, not concealing her alarm.

"Yes," said Serov seriously. "Flying. To the Crimea for a holiday."

But Anna smiled sadly.

"Anton, is it true that there's nothing...."

"No, it's not true, Anna," he said simply. "There'll be another posting. I don't know where yet."

"Anatoly, please tell me...." Anna began.

Serov shook his head and spread out his hands.

Anna concluded:

"Oh, well, what difference does it make where. Only please send us together."

The People's Commissar for Defence, Marshal Voroshilov, received the pilots in the Central Red Army Club. In the presidium Gubenko saw famous Soviet military men and pilots. Voroshilov's speech was followed by a concert. At the dinner given in honour of the pilots the People's Commissar for Defence spoke again.

Unaccustomed to such a formal reception, Anna was subdued all the evening, somewhat overawed and confused. A new rank, a new posting. All that had to be thought over and assimilated.

On August 18 there was an air display. About a million spectators gathered on the Tushino airfield. Air displays had become an annual event since 1933. A year is not a long time to produce important technological innovations, but nevertheless each year new types of aircraft appeared in the Moscow sky. The country was demonstrating its growing might.

That day Communist Party and government leaders held a reception for participants in the display and the volunteer pilots in the Kremlin.

A few days still remained before their departure for the South. They were filled with meetings at factories and reports to the Air Force Department. Serov took Gubenko under his wing, bringing him to meetings with workers and students. Shortly before Gubenko left for the Crimea the two of them appeared with Chkalov at the Master of Arts' Club, where beauty, wit and courage were particularly appreciated.

Gubenko went on leave for two weeks. At the Air Force Department he was informed of his appointment as deputy commander of the Air Force in the Byelorussian military district.

Anton wrote a letter to his family:

"Dear Mother,

"Your good-for-nothing son is alive and kicking. He has been promoted and given a new appointment. I am going to serve in Smolensk. Please come and visit me. Anna is more beautiful than ever. She has stopped being obstinate now that she is thirty, behaves well at meetings and receptions and charms everybody. She's a good girl. Yesterday we exchanged declarations of love again. Perhaps long partings are a good thing sometimes. I don't know. Kira has grown into a big girl and learnt to read. She wants to be with me all the time. But I've got work to do...."

To "Mother Tanya", his eldest sister, he wrote that he was so busy that he had not had a spare moment since his return from China, and that he missed the Soviet Far East and the gully in his native village; he described the meeting in the Kremlin and his conversation with Chkalov who had advised him to join the Bolshevik Party, and said that he now felt sufficiently mature for such a responsible step.

At the beginning of September Gubenko set off to take up his new appointment. The train left at night. Anton walked up and down the corridor excitedly. What sort of a welcome would he be given? What would it be

like starting work in a new place and in such a high post—deputy Air Force commander of the military district? Yes, he had combat experience and flew all types of fighters, but was that the main thing? He remembered once saying to the brigade commander in the heat of the moment: "It's time I commanded a squadron at least!" Rash words. And now he had been given the right to command not only squadrons, but regiments. What did they say? Water is soft until you hit it hard! An aphorism from Assen Jordanov's book *Your Wings*. And another aphorism: "Fear can be overcome either by contempt for danger or with the help of knowledge, the latter path is usually the best...." So it was a question of knowledge. Did we have enough?

The train was approaching Smolensk. It was a quiet, cool morning. The whitish sky was covered with haze and the trees stood motionless in a drowsy stupor. It was as if autumn had entered the town unexpectedly, casting its colourful imprint on the parks and gentle hills, and misting the turquoise sky.

The station was crowded and noisy, with shouting porters and hurrying passengers. Gubenko was met by a group of commanders. There was Military Commissar Chikurin, Major Khudyakov and Senior Lieutenant Tenkov.

"The commander asked me to tell you," said Chikurin, who had a bad cold, "that you should settle in and have a rest. The day after tomorrow the commanders and the political staff of the Air Force Department of the military district will be introduced to you at 9 a.m. At 12.10 you will be received by the commander of the district Kovalyov."

"Thank you, Comrade Commissar. But I should like to go to headquarters straightaway, introduce myself and get down to work...."

"So you won't object if I take your family to the flat?" Chikurin raised his broad palm. "Very well. But the master must be the first to cross the threshold. Isn't that so, Sergei?" He turned to Major Khudyakov.

"Yes, Commissar," said Khudyakov, with an attractive

Caucasian accent. "But Colonel Gubenko's flat is on the way to headquarters. In the Caucasus we say: "Whether you go into a house is up to you, but whether you go out is up to the owner."

Gubenko laughed. He had been afraid of the first few hours in the new place and had not slept a wink all night, but what a nice lot they were here. They appreciated a good joke. "Humour is the wit of deep feeling," wrote Dostoyevsky. And this certainly applied to the people who had welcomed him in Smolensk.

An hour later Gubenko was at headquarters introducing himself to the Air Force commander of the military district Gusev, a man of considerable experience.

"I'm not going to try and force any plan on you, Gubenko. Take a look round and read the documents and orders," said Gusev, pleased with the deputy.

"May I have permission to visit the units and acquaint myself with the situation?"

The commander consented.

Anton immersed himself in work straightaway. He often flew to other garrisons, spending several days there. There was a great deal of combat activity going on in the units of the district: the personnel was being trained to use new equipment, the structure was being changed, and the administration improved. Young pilots were arriving at the garrisons. They had to be received, billeted, allocated a place in combat crews, etc. Intrepid, full of enthusiasm and unshakable faith in the power and reliability of their planes, they all had little flying, let alone combat experience.

After studying the situation, Gubenko went to see the commander and expounded his conclusions in detail. In some units there was underestimation of the danger of war, slipshod flight operations control, inability to work with emergency airfields, and poor living conditions. It was suggested that unit commanders be assembled and informed in detail about the fighting efficiency of the air force of likely aggressors (Germany, Poland, Rumania) and that airborne alerts be introduced.

As if to anticipate the measures drawn up by the Air

Force Department of the Byelorussian military district, a resolution from the Chief Military Council of the Red Army on the future development of the Air Force and the enhancement of its role in a combat situation arrived at headquarters. It was a detailed and thorough plan covering many years ahead. This was precisely what Colonel Gubenko had recommended and sought to achieve in the flying units: his combat experience had made itself felt.

In October 1938 the units of the Byelorussian military district underwent a detailed inspection by a Red Army Air Force Commission. And a few days after the commission left, Moscow asked for a testimonial on Gubenko.

Military commissar Chikurin wrote:

"In his short time as deputy commander of the Air Force in the Byelorussian military district has shown himself to be a good organiser and an exacting and persistent commander. Is politically well developed and morally reliable."

Moscow became interested in Anton Gubenko and again requested a testimonial.

"A non-Party Bolshevik, devoted to the cause of the Party and the socialist motherland, who has proved his devotion in practice. Possesses extensive knowledge and has combat experience as a fighter commander. Has shown himself to be a capable, energetic and exacting commander who knows his job and is capable of organising the work of the units," wrote Divisional Commander Gusev.

The Air Force Commander of the Red Army wrote:

"A capable, energetic commander. Has great organising ability. Was awarded the Order of Lenin in 1936 for outstanding results in personal combat training and skilful management of the combat and political training of the unit."

Anton, naturally, knew nothing of all this. But then a letter arrived from Serov.

"Well done, Anton. I am delighted for you. Work more, don't spare yourself.... A great deal depends on us.

We must teach the young and pass on our combat experience. We will soon have an occasion to meet."

An occasion to meet? What could that be?

A telegram arrived. Colonel Gubenko was summoned to Moscow, to the Kremlin. Mikhail Kalinin peered at the faces of the pilots, respectfully subdued in their new suits, recognising people he knew, nodding frequently, and giving friendly handshakes.

"Comrade Gubenko," Kalinin shook him by the hand, and the strong, stocky pilot with the crew-cut was ashamed of being famous. Colonel Gubenko was awarded the Order of the Red Banner for the courage and valour which he had shown in performing his internationalist duty.

His friend Major Grigory Kravchenko was also awarded the Order of the Red Banner. That day Gubenko met Serov who was gloomy and preoccupied.

"You are probably wondering why Serov is so miserable today, my friends," Anatoly smiled sadly and went up to the window. For a moment he looked at the grey asphalt and the mist rising from Sverdlov Square. "I'll tell you. I want to go back to test flying. I hardly fly at all these days. It's boring, nothing but meetings, conferences and papers. I need a plane. But I can't leave. The situation is getting tense. There's a great deal to be done and quickly. We need fast, high altitude, long-range aircraft. A lot of them...."

Late that evening Gubenko left for Smolensk. In spite of his gloomy conversation with Serov who, in Anton's opinion, had left the main thing unsaid, his mood was elated and joyful: his second award, a combat one, smelling of gunpowder.

They had missed him at home. Kira took possession of the service cap and the doll, a present from Serov, and then of Daddy's back too. She needed movement. Through movement she expressed her attitude to the world, her mood.

In the Annual Report of the Chief of the Air Force considerable attention was devoted to the tasks for the immediate future. Task number one was to increase the

combat readiness of all units of the Air Force. Attention was to be concentrated on training pilots to fly at high altitudes, practicing non-local and full-radius flights, and stage-by-stage tactical air exercises. Each commander was to make a detailed study of the possible aggressor.

Life in the air units was tense. The pilots saw reserve commanders being trained and emergency stocks and stores of ammunition, fuel and lubricants being built up.

An order arrived that all secret correspondence was to be conducted under code names of units. Airborne alerts were introduced at aerodromes. The crew on duty had the following orders:

"Fly out to meet the enemy aircraft with the aim of shooting them down if they are foreign planes and ordering them to land if they are ours, or shooting them down if they refuse to obey the order."

To ensure that the orders were carried out Colonel Gubenko flew round the garrisons, instructing the commanders and addressing the personnel. He spoke of the importance of a high degree of combat readiness and the ability to plan an attack efficiently. He talked about his comrades and his ram.... He gave special attention to work with colonels Falaleyev and Beletsky. They needed to be able to take decisions independently, to act in isolation. This was essential in wartime.

...Winter approached imperceptibly. The weather cleared and the regiments were able to continue day and night flying.

On one of these days Colonel Gubenko flew in on his I-16, thanked the mechanic and walked off to headquarters.

The duty officer reported in a somewhat listless, offhand fashion. His eyes looked sick or tired. Gubenko wanted to reprimand him, but changed his mind and decided to have a word with Khudyakov. He liked Major Khudyakov, head of rear aviation, for his self-discipline and assiduity.

Colonel Gubenko took off his fur-lined coat, smoothed down his hair and was about to enter when the door opened unexpectedly.

"Sergei," Gubenko greeted Khudyakov, "I was just coming to see you."

Khudyakov did not react at all to the cheerful greeting; which surprised Gubenko greatly.

He was puzzled by Khudyakov's sad face.

"We have just received the news, Colonel. Chkalov is dead."

By the time Khudyakov had composed himself and looked up, Gubenko had gone. He was with the commander.

"I quite understand," the commander was saying. "Of course you can go, but I cannot give you an aeroplane."

"Why not?"

"We are responsible for you, Gubenko. You are extremely upset. In such a state it is dangerous to drive a car, to say nothing of flying an aeroplane. Go by train. Try to pull yourself together. You'll be in the capital tomorrow morning."

Gubenko returned from Moscow five days later. He had lost weight and now shunned company. Chkalov's death came as a great shock to him. The commander did not allow him to fly for the time being.

They saw the New Year of 1939 in at the Red Army Club. That evening Gubenko said to Khudyakov:

"I've been thinking a lot these days. I often remember the Soviet Far East. What a pity you have never served there."

"I regard your wish as a command, Colonel."

Gubenko smiled at being misunderstood in such a way.

"In the Air Force everyone should fly, Khudyakov".

On that New Year's Eve none of them could have dreamed that Gubenko's "wish" would come true: that a few years later Air Marshal Khudyakov would be put in command of the 12th Air Army and take part in the defeat of the Japanese in China.

In January Khudyakov made his first flight. On the agreed day Gubenko arrived at the aerodrome to watch Major Khudyakov fly on his own. After the third flight, the colonel said:

"You're a real pilot, Khudyakov!"

When the plane was ready again, Gubenko flew it himself. Khudyakov was speechless with admiration. Gubenko performed the aerial acrobatic figures with extraordinary grace and skill. And Khudyakov thought he would never be able to do anything like it....

A letter arrived from Serov.

"How are things, Anton?" he wrote. "Are you doing a lot of flying? You should. We must not stop. Aviation is developing very rapidly. They are working on a splendid new plane at the Central Aerohydrodynamics Institute. I applied to the People's Commissar for permission to fly it. Voroshilov asked me to come and see him and we had a long talk. In his letter to the government he wrote: 'There are many pilots who would like to fly this type of plane, but Comrade Serov is the most suitable....'" Serov also said that Anatoly Tamara, Alexander Dubrovsky and Mikhail Gordienko had decided to make a non-stop flight from Moscow to Austria in memory of Chkalov.

The letter ended with the words: "You'll be coming to Moscow soon and we shall meet...."

Anton did not know that the following document had been received by the Presidium of the Supreme Soviet of the USSR:

"Comrade Gubenko is one of the outstanding pilots who has been in Z[1]. During combat duty at the front he showed himself to be an exceptionally daring, brave and courageous pilot. In a combat on May 31, 1938, after running out of ammunition he rammed an enemy plane with his propeller, brought it down and landed safely in his aerodrome. On June 26, he shot down a Japanese fighter in the first battle, and on the same day was shot down himself in the second, but baled out. In a battle on July 29 he fought alone against three Japanese fighters, thereby saving one of our bombers. On July 18 he came to the aid of his comrades by engaging six enemy fighters in combat. He shot one of them down and emerged unharmed from the battle.

"In spite of injuries received as a result of bailing out,

[1] The code name for participation in the Chinese war of liberation.

Comrade Gubenko took part in all subsequent battles until he was called home.

"Comrade Gubenko has personally brought down seven Japanese aircraft.

"His organisational, combat and political qualities make him worthy of the award of the title of Hero of the Soviet Union...."

In the middle of February Colonel Gubenko was called to Moscow. Brigade commander Serov met him at headquarters and embraced him.

"Congratulations."

"Why?"

"On being made Hero of the Soviet Union."

"Me?"

Anton felt dizzy. He could not take it in at once. Hero of the Soviet Union!

That evening many pilots gathered in Serov's flat. Among them was a woman, whom Anton did not know, but who impressed him as a dedicated flier. She was arguing heatedly that women should have the right to take part in the development of aviation on a par with men.

"I have written a letter to Comrade Stalin," she said excitedly. "I requested permission for a women's crew to fly to America over the North Pole. We need the women's international long-distance record. We'll show the whole world what we can do."

It was Polina Osipenko.

She and Serov were flying new aircraft. Later Anton learned that she had been received by Voroshilov who supported her idea, but persuaded her to postpone the flight until 1940. The flight was destined not to take place in 1940, for in May 1939 Osipenko met her tragic death.

Anton Gubenko was given a great reception in Smolensk. At a meeting held in his honour he said:

"I feel a tremendous desire to work. I must do a great deal in order to be worthy of this high award...."

He planned to do a great deal. But the sky betrayed him, the air on which he had relied for so many years, let him down this time.

"On March 31, 1939," recalls Stepan Kireyev, "Colonel Gubenko gave orders for his plane to be prepared for a flight with firing practice.

"There was a strong northwesterly wind. It suddenly grew dark and began to snow. We covered the engines so that they would not cool. About half an hour later the snow stopped and the sky cleared again. Gubenko took off. He began to perform aerial acrobatics, then approached the target, but did not fire, rocking his wings warningly as a signal that everyone should leave the danger area. Then he approached the target a second time and gave a short burst of fire....

"On the third run the plane did not recover from the dive until it was close to the ground. The plane struck the ground, turned over twice and caught fire. Three fitters and I rushed up and dragged Anton Gubenko out. He was dead."

In May 1971 on the eve of Victory Day a letter arrived at the offices of the Smolensky newspaper *Rabochy Put* (*The Workers' Path*).

"In the Polish Cemetery in Smolensk," wrote some schoolchildren, "we discovered a grave with a simple monument on which we managed to make out the inscription: "Colonel Anton Alexeyevich Gubenko, Hero of the Soviet Union, 1908-1939."

"Who was he this man who was awarded such a high title even before the war, how did he meet his death, and why is he buried in Smolensk?"

The newspaper appealed to the town's military commissar Serov, Soviet Army veterans and old inhabitants of Smolensk, for information.

The search had begun.

Nikolai Zaitsev, a captain in the reserves, wrote:

"In 1938 an energetic young man with the Order of Lenin and the Red Banner arrived in our unit of the Air Force Department of the Byelorussian military district. At that time one rarely saw people with combat decorations, so he immediately aroused our interest. We soon learnt

that it was A. A. Gubenko, the new deputy commander of the Air Force in the Byelorussian Military District...."

Colonel Dmitry Kopytov recalled: "I served with Anton Gubenko in the Soviet Far East. He joined our regiment in 1929. He was a truly outstanding pilot."

There were many letters, from people who had known Anton Gubenko and people who had not, but were interested in his story. The editorial board set up a council to find material about his life.

The Regional Committee of the CPSU, in view of A. A. Gubenko's outstanding services to his country and in response to wishes expressed by working people, decided that his ashes be transferred from the Polish Cemetery to the Heroes Wall in Kutuzov Garden.

On August 13, 1971 the town of Smolensk paid tribute to the hero in a solemn ceremony.

An armoured troop carrier bearing the coffin with his ashes and a mass of wreaths moved along slowly amid hushed silence. On either side marched a military escort of honour. The music of Chopin, Bach and Mozart mingled with the rustle of summer foliage.

In the funeral procession were Anton Gubenko's relatives and friends, people with whom he had served, troops from the garrison, representatives of the town's Party, local government, trade union and Young Communist League organisations, students, Young Pioneers, young pilots, and astronauts, as the successors to his military fame.

The military banner with a black crepe ribbon on its staff was lowered as a final tribute to the outstanding Soviet pilot.

The funeral procession stopped by the Fortress Wall, the sacred spot where the glory and valour of Russian military prowess is recorded for eternity. The impregnable, unassailable walls of the Smolensk fortress looked on with their open embrasures. On a granite pedestal were the heroes of the Patriotic War of 1812.

Anton Gubenko, like them, has become immortal.

Jet Take-Off

Mission Uncompleted

At that time, the spring of 1963, as I set off on a commission from the newspaper *Vechernyaya Moskva* for an old house in a quiet Moscow street, I did not know that I would become the possessor of some very rare information, but would be unable to carry out the task entrusted to me. About the future hero of my feature story I knew very little. There are some people whose work remains hidden from the public eye for a time. They are pioneers, creators of the new, people with questing, creative minds, who are ahead of their time.

The scientist Victor Bolkhovitinov was well-known, of course, and enjoyed great authority among aviators, but people of other professions had not heard of him. Not a single book had been written about him, yet he helped to write books about his assistants. He founded his own scientific school and many academicians regarded him as their teacher, but he himself remained only a doctor of technical sciences. He had an infinite love of aviation and infected others with his fanatical devotion to it. He designed several gliders, and light and heavy planes, each of which marked a new stage in Soviet aircraft production.

Bolkhovitinov wrote many excellent works on the problems of modern aviation, produced original designs, and carried out some very bold plans.

We had fixed the meeting the day before. Bolkhovitinov ushered me in, helped me take off my coat, and invited me into a large, bright room. There were books, armchairs, and models of aircraft and satellites, among them a wooden model of the BI plane—the first jet aircraft. There were also many plants and flowers:

tulips, springs of pussy-willow and violets on the window-sill, by the books, and on a low table. My host was in no hurry to start our talk and gave me time to look around and get used to the place. I wanted to ask him at once about the BI, the famous fighter plane, but remembering the aim of my visit I asked my first and most important question:

"Will you tell me about yourself, please?"

Bolkhovitinov became embarrassed. His face turned red, emphasising the grey of his luxuriant hair, and his eyes became wary.

"It's hard to talk about oneself. A plane is produced by a team."

I began again with some leading, but precise questions:

"The design office began work on the BI in March 1940 and its design was completed in March 1941. It is March again now. There must be something symbolical about this time of the year."

"I love the spring. Of course, March is the first month of spring and brings a new lease of life: the sun, good spirits, the desire to work. But March has brought me unpleasant things as well. In March 1943 Grigory Bakhchivandzhi, one of the most eminent Soviet pilots, crashed in the BI. It is true that we started work on an aircraft with a liquid-propellant rocket engine in March, but we had been working towards this for a long time. We based ourselves on the net result of discoveries made in other countries and on the knowledge and general technological level of our own engineering specialists. We knew that we were facing very difficult problems and that there might be setbacks, errors and hitches. We needed enthusiasts for this difficult job. And we found them...."

He mentioned the names, some well-known, others not, of scientists, engineers, technicians, pilots, heads of agencies, people's commissariats, and scientific research institutes, who had taken part and helped in the creation of the first winged missile. The design office of which he was in charge obtained its staff from research institutes, aircraft factories and the Zhukovsky Academy.

"In March 1941," Bolkhovitinov continued in a quiet,

deep voice," we completed work on the design of the plane. War was approaching. The Central Committee of the Party and the Soviet Government instructed designers of military technology to put the best armament models into production. We thought our plane could be one of them. The armies of the most advanced capitalist countries did not yet possess a plane of this type, with a speed of 800 k.p.h.

"In Italy the designers Caproni and Campini produced and tested the CC-1 plane with a jet engine in 1940. The Whittle group in England was working successfully on the design of a jet aircraft. During the war the working drawings of the Whittle engine were sent to the USA.

"Experiments to achieve high speeds were carried on most intensively in fascist Germany. In 1938-1939 the Heinkel firm constructed the Heinkel-176 and Heinkel-180 fighter planes. The Messerschmitt firm designed a jet fighter. During the Second World War these planes appeared on the front without influencing the course of the war significantly. Evidently the leaders of Nazi Germany did not understand the potential of the development of jet aviation."

"General, you said: 'We based ourselves on the net result of the discoveries made in other countries.' Could you say something about the work done in this field in our country?"

"I was just getting to that. Konstantin Tsiolkovsky is the father of rocketry. His brilliant works helped our scientists to turn scientific surmises into reality. In 1930 the inventor Fridrikh Tsander created the first rocket engine. He brought together in the Jet Propulsion Study Group a team of the best research scientists who included Sergei Korolev. It was Korolev who completed construction of the OR-2, a prototype rocket aeroplane, and tested it when Tsander was ill. After Tsander's death Korolev became head of the Study Group. He worked indefatigably. He had to endure many trials and tribulations, but his willpower, sense of purpose, and excellent health helped him achieve his great aim. He constructed engines, planes

and rockets. His love of aviation was quite extraordinary. Incidentally, this was why we made friends...."

I was trying to write down everything General Bolkhovitinov said in a small notebook balanced on my right knee. He looked at my pen suspiciously, broke off, then started up unexpectedly, saying:

"Do you want to write about this?"

"Yes, I do."

"That's splendid. Then write about Bakhchivandzhi."

The general's face broke into a supplicatory smile and he waited impatiently and tensely.

"I am sorry, General, but I cannot write about him."

"Why not?" he asked loudly, throwing up his powerful, muscular hands in bewilderment, and then letting them fall on the curved arms of the chair in resignation. "People write about astronauts, don't they? You journalists should understand that no matter how great the achievements of scientists and designers may be, we do not expose our lives to danger, but test pilots do so every day. And the more complicated our models, the greater the risk. It was pure chance that Grigory Bakhchivandzhi did not become a Hero of the Soviet Union. But I believe that he will be yet."

In spring 1962 the journal *Aviation and Astronautics* published an article by Lieutenant-General Vladimir Pyshnov, Merited Worker of Science and Technology, entitled "The First Jet Plane". He wrote: "The BI-1 was essentially a piloted winged missile and its maiden flight was very similar to the flight of a missile, although the momentum margin was still small. The name of the pilot Grigory Bakhchivandzhi holds an honoured place in history as that of a forerunner of our first astronauts Yuri Gagarin and German Titov."

A few years later this idea of Pyshnov's, who was chairman of the State Commission on the testing of the BI-1, was confirmed by Yuri Gagarin: "If it were not for Grigory Bakhchivandzhi, there might have been no 12 April, 1961." Expressed with Gagarin's usual laconic precision.

"I will definitely collect material about

Bakhchivandzhi," I decided, "But our readers are also interested in the man who produced the flying machine which the pilot tested, and that is the purpose of my visit to you today."

The general was immersed in his own thoughts and staring pensively out of the window. Our conversation floundered or, rather, spun to a halt like a car on a slippery ascent. There was a great deal of effort, but with no result. A long silence testified to the "incompatibility" of those present. It was finally broken by a question from my host.

"Do you know Pyotr Stefanovsky?"

I nodded in reply and gave the general a suspicious look.

"He knew Bakhchivandzhi well," continued Bolkhovitinov. "A very fine person and a most courageous test pilot: that's a real find, a treasure, for a design office and for a designer. Have a talk with Boris Kudrin. He is the first Soviet test pilot, a human encyclopaedia of aviation. Alexander Berezhnyak and Alexei Isayev will help you too. Do it quickly. The years are taking their toll...."

I did not pay due attention to this advice at the time and many years later I was to regret not having listened to General Bolkhovitinov. The ranks of his associates were thinning out with remarkable rapidity.

"General," I braced myself to continue the conversation, "can the birth of the BI be linked with the creation of the Katyushas?"

The general started as if my question had brought him out of a trance, and turned to face me. I recalled the friendly caricature of him in the Academy wall-newspaper *Onwards and Upwards*. Bolkhovitinov on the top of the world in his beloved yacht. The luxuriant head of hair, the high forehead, the powerful, boxer's brow, and the dimple on the chin. He was just the same today.

"Of course," the brows moved up and the keen eyes shot an interested look at his interlocutor. "Science has long ceased to be a matter for individuals. The BI was born so quickly because we made use of the achievements

of our colleagues. You know, of course, that the idea of jet and rocket propulsion was studied by many Russian scholars as early as the 19th and even the 18th century. Nikolai Tikhomirov, Vladimir Artemyev, Boris Petropavlovsky, Ivan Kleimenov and Georgy Langemak all racked their brains over the creation of rockets....

"Experimental firing of the Katyushas, although they were not called by this name at the time, was carried out before the war. There were also proving-ground tests near Leningrad and the River Khalkin-Gol. I-16 and I-153 fighters equipped with 82 mm and 132 mm rocket projectiles were used successfully to combat enemy aircraft. The group of Grigory Kravchenko, Hero of the Soviet Union, shot down a total of 204 enemy aircraft, 13 of them with rocket projectiles.

"In 1939 Leonid Dushkin created a liquid-propellant rocket engine. It was installed in a glider designed by Sergei Korolev and passed the ground tests. The glider with the liquid-propellant rocket engine was launched by a towing vehicle and then the engine was started. The testing of the rocket glider was entrusted to an amateur glider pilot, Vladimir Fyodorov. The first engine delivered a thrust of 140 kg. Its action time was a few seconds. After exhausting the fuel reserve, the pilot made a successful landing on the airfield.

"During this period Sergei Korolev was working successfully on the creation of long-range winged guided missiles.

"The development of the first Soviet engines proceeded along the lines of the liquid-propellant rocket engines. Naturally this was bound to influence the development, creation and testing of missile hardware.

"After modifications the mobile rocket launchers were called BMs.

"They were produced by Moscow factories. The following facts bear witness to the colossal effort made by the workers of the capital:

"On 22 June, 1941 the Red Army did not possess a single BM unit.

"By 1 July, 1941 it had one battalion consisting of

three batteries. Each battery had four BMs.

"On 1 January, 1942 the Army received 87 battalions, 50 of which were sent to defend Moscow.

"By 19 November, 1942 the fronts, which stretched from the White to the Black Sea over many thousands of kilometres, had 355 battalions. The existence of such a large number of BM battalions made it possible for them to be formed into regiments and brigades.

"The BM was being constantly improved. The BM-31 appeared with increased firepower. The salvo of a division consisting of four mortar regiments was 3,840 projectiles with a total weight of 230 tons. There was a steady increase in the range, the close fire pattern and blasting effect, and the density of BMs per kilometre of the front. The effective combat use of the Katyushas produced confusion and panic among the German troops.

"We sought to achieve the same result with the BI...."

On this we parted. The newspaper commission had not been carried out—the feature story about Bolkhovitinov did not materialise.

I few days later, it was a Sunday, Major-General Stefanovsky came to see me. He was hoping to publish the book *The Three Hundred Unknown.* At that time it did not have this romantic title and was a manuscript not of sixteen printer's sheets (the size in which it came out) but one hundred. It was a real encyclopaedia of aviation.

Reading the manuscript was extraordinarily interesting. Pyotr Stefanovsky seemed to have the whole history of Soviet aviation at his fingertips. He had taken part in the main stages of its birth and tested the prototype aircraft which opened up new trends of its development.

After discussing the manuscript, we turned to other subjects. I asked:

"Do you know Bolkhovitinov?"

"Yes. I do," Stefanovsky said abruptly. "An excellent person."

"I went to see him," I confessed, "but the conversation did not get off the ground."

General Stefanovsky began to ask me about Bolkhovitinov, his health, what he was doing, and whether he

still went yachting.

"He's a daunting person," said Stefanovsky. "But a real designer, a great scientist. I'm a little afraid of him too," he confessed. "I should like to write more about him."

"He said that you knew Bakhchivandzhi well?"

"Grigory? Why, of course. I knew him very well. And so did my commissar, General Sergei Ponomarev. He was a shrewd chap, the commissar, he wrote down everything and did not rely on his memory. He knew it would all come in useful. I often go and see him now. But I will help you too."

I must say, in advance, that General Stefanovsky gave me very considerable assistance in portraying the personality of Grigory Bakhchivandzhi.

Bolkhovitinov

I did not plan to have another meeting with Bolkhovitinov for about a year. In the meantime I intended to read everything that had been written about him and Bakhchivandzhi.

I wanted to devote the summer and autumn to talks with people who knew Bolkhovitinov. I drew up a list which was quite a long one.

Work in the archives and at the Lenin Library and meetings with Bolkhovitinov's friends, pupils and colleagues made the summer a very busy one and took up the whole of my leave.

Let us begin with Bolkhovitinov.

After his schooling at the Saratov gymnasium Victor Bolkhovitinov entered the medical department of Saratov University. Six months later, having realised that this was not his vocation, he moved to the Department of Physics and Mathematics.

As he himself recalled later "I liked it, but not very much...." In the autumn of 1918 he left for Moscow with the bold aim of enrolling at Moscow Higher Technical School. He attended lectures regularly and listened enrapt

to Zhukovsky, but soon fell ill with typhoid and returned to Saratov with no hope of going back to Moscow. After recovering from his illness, he applied for admittance to the Engineering Institute of the Air Force. He was passionately fond of aviation and convinced that he could be of use to it. He saw himself as a designer of flying machines. His persistence was rewarded. In 1921 he entered the Air Force Academy. There he began to work in the design department and to experiment.

In 1923 the Academy set up a Military Science Society with the first interplanetary communications section in the USSR. The section's leaders invited eminent Soviet scientists to their meetings, among them Fridrikh Tsander, Vladimir Vetchinkin and Nikolai Rynin. On 23 August, 1923 the section was addressed by Konstantin Tsiolkovsky.

Bolkhovitinov attended all the section's sessions and meetings with scientists and presented papers himself.

A correspondence began between Tsiolkovsky and the Academy students.

On 29 April, 1924 Tsiolkovsky wrote:

"Dear comrades,

"I am delighted at the opening of the interplanetary communications section.... I have sent you what I can. With regard to visits and lectures, I cannot promise anything at present. If I were young and healthy, I should regard it as my duty to comply immediately with your request....

"I shall do what I can (as I always have).... I am ready to publish a number of new papers on the rocket. They will be very elementary, but strictly scientific....

"I hope to find a journal willing to publish them.... Perhaps you could tell me of one. I require no fee....

"Yours,

"K. Tsiolkovsky."

The students replied immediately, telling him of their plans. Shortly afterwards they received another letter from Tsiolkovsky.

"Dear comrades,

"I am replying to your letter of 4 May, 1924. I fully

appreciate your desire to film a fantasy on interplanetary journeys. I shall be very glad if you make use of my *Outside the Earth*. But it would be difficult to apply cinematography here.... It would be much easier to illustrate the book and show obscure pictures....

"...Experiments with reactive devices are very useful, and we should begin with them. But we must know the theoretical principles and see clearly what we are aiming at and what we can achieve.

"...The speed of a rocket in a medium free of gravity increases constantly, no matter how small the mass of jettisoned bodies....

"Greetings to you and the teachers,

"Yours,
"K. Tsiolkovsky."

Gliding was developing rapidly in our country. In 1923 the Gliding Aviation Centre of the Air Force Friends' Society organised the 1st All-Union Gliding Trials, later renamed the All-Union Gliding Pilot Rallies, in the Crimea near Feodosia.

Sergei Ilyushin, the designer of the famous aircraft, who organised and took part in several rallies, was to say later:

"Gliding is the cradle in which every future aircraft designer must be rocked...."

The aircraft designers Alexander Yakovlev and Oleg Antonov were indeed "rocked" in this cradle, as were Sergei Korolev and his co-member of the Jet Propulsion Study Group, Mikhail Tikhonravov. Nor did it pass by the young Andrei Tupolev and Victor Bolkhovitinov.

The 11th Congress of the All-Union Leninist Young Communist League passed a resolution on the League's patronage of the Air Force. Thousands of young people flocked to join the flying clubs. Gliding was particularly popular and also more accessible. By the beginning of 1935 our country had 230 gliding stations, 10 training schools and 1,600 clubs, in which about 17,000 gliding pilots were being trained.

Two gliders built by a team of enthusiasts in the Academy design office from Bolkhovitinov's design, the

AVF-6 and AVF-18, took part in two All-Union Gliding Trials at Koktebel. The gliders performed well and established Bolkhovitinov as a "promising scientist and designer...."

Victor Bolkhovitinov was an active member of the Academy's scientific club, the head of its design department, and in charge of the gliding school of the Moscow Committee of the Young Communist League. He constructed gliders, tested them and prepared them for All-Union competitions (he was awarded a prize for one model).

In May 1926 Bolkhovitinov, who had graduated from the Air Force Engineering Academy, took an oath of allegiance to aviation.

"...I have joined the ranks of the Red Air Force in order to strengthen it by my selfless labour, to promote scientific and technological progress, to find the new, to discover the unknown, to create that which is original, but flies well and obeys the pilot."

Many difficulties and circumstances that gave rise to doubt, hesitation and uncertainty arose on the life's path of the young Red Army commander, but Bolkhovitinov never betrayed his oath, his life's dream.

His questing spirit did not seek quiet or repose. Bolkhovitinov designed a light aircraft. He was in his element. He became passionately interested in hydro-aviation, and this was evidently what determined his appointment after graduation from the Academy as senior mechanic at the Sevastopol Flying School. After a few months he became firmly convinced that the apparently fantastic idea of catapulting aircraft was in fact quite feasible.

He returned to the Academy as a post-graduate student and completed a long and serious work entitled "The catapult and shipborne aircraft". This became the subject of his dissertation. But his weakness, gliders and light planes, continued to take up much of his time. Young enthusiasts inspired him to new plans. Bolkhovitinov wrote articles and textbooks on hydro-aviation, but his thoughts kept returning to a new model of

aircraft: a multi-engine plane made entirely of metal. This problem could not be solved without a new approach. Many years later Bolkhovitinov's friends wrote: "In 1931 the textbook *Applied Aircraft Aerodynamics* was written with his participation. In his study of aerodynamical problems, he constructed a special hinged 'pendulum' which was used for testing aerodynamical profiles and models."

Thanks to the willpower and persistence of the young postgraduate student Victor Bolkhovitinov the design department was turned from a body which propagated aviation into one that experimented and created. All their flying machines had the word "Academy" in front of their names. A tribute to the young, non-competing organisation. Social work brought Bolkhovitinov fame, authority and status in the team. People began to have faith in him. He was referred to as an "eminent scientist ... outstanding designer and good organiser...".

Academician Vladimir Vetchinkin wrote enthusiastically of the young scientist: "His military and scientific training is quite high, higher, it would seem, than that of the other three teachers to whom I gave diplomas.

"In the sphere of hydro-aviation Bolkhovitinov is one of the few serious specialists on the subject, and the subject chosen by him—catapulted aeroplanes—is a most topical one and totally unstudied."

After defending his dissertation, Bolkhovitinov stopped work on hydroplanes, much to everyone's surprise, and began to design a multi-engine bomber.

His plans were carefully considered by the Administration of the Air Force and the People's Commissariat of the aircraft industry. Marshal Tukhachevsky gave all possible assistance to the enthusiasts, obtaining funds to finance their project and placing an order with an aircraft factory. But Bolkhovitinov was not in a hurry. Void of all ambition, he took great pains with the birth of his first plane: it was better to have one plane that flew than two that stood on the ground. He expressed the desire to familiarise himself with foreign writings on the subject. His colleagues were afraid that he would lose much time

waiting for translations of foreign articles and books.

Amid the tacit disapproval of his fellow-workers Victor Bolkhovitinov set off on his home-made yacht for an indefinite period in an unknown direction. For fear of overloading the craft, he took with him paper, pencils, a lightly packed rucksack and a Mauser, a present from the head of the Academy. Later it transpired that the rucksack contained textbooks on English and German grammar. Drifting along the river, he studied the two languages and began to make his own translations.

Bolkhovitinov did not introduce iron discipline and strict observance of rank into the department. Everything was based on a sense of duty. He himself worked as hard as he could, for as long as he could stay awake, as long as his eyes could make out the letters and the drawings.

The Soviet Union was creating its Air Force. The tests of Tupolev's TB-3 were going well. The newspapers were full of interviews with test pilot Nyukhtikov.

Bolkhovitinov started his work by talking to Nyukhtikov. He was interested in what he found wrong in the aeroplane. He, Bolkhovitinov, knew what Tupolev had achieved. The pilot would tell him what was lacking. And then he, the designer, would begin to remedy the shortcomings in the famous plane.

The three years' operational experience of the TB-3 could serve as a basis, a point of departure for moving forwards. But how, to what point should this line be drawn? The starting point was at hand, but the desired aim depended on many factors: technological processes, level of personnel training, expensive metals and, most important, overcoming conservative attitudes.

Tupolev's TB-3 passed all the test stages, went into production and was adopted by Air Force units. Following a governmental decision three TB-3s set off on a demonstration flight: Warsaw-Prague-Vienna-Paris. It was, after Mikhail Gromov's flight, the second political move to demonstrate the Land of the Soviets' prowess in aviation.

The DBA (Academy long-range bomber) was the first aircraft to have semi-retractable landing gear, a metal

covering and an enclosed cockpit. Today such a list may make the reader smile, but at that time these innovations were an important step forward, a great technological achievement.

Recalling the period which preceded work on the DBA, Bolkhovitinov said:

"It was an exercise in designing the new and unusual: an exercise in training a team that was not afraid of any tasks, and, finally, an exercise in finding solutions that produced significant, gradual advances, solutions that meant a great leap forward."

On 1 May, 1936 the heavy bomber with four AM-34 engines, each with a capacity of 860 hp flew over Red Square. In November, 1936 the pilots Nyukhtikov and Lipkin set up two world records in this plane for lifting loads of 10 and 13 tons.

The pilots Baidukov and Kastanayev set up the world speed record. The plane's reliability and excellent flying characteristics prompted Hero of the Soviet Union Sigizmund Levanevsky to suggest to the DBA test pilot Nikolai Kastanayev a flight from Moscow to America via the North Pole. Marshal Tukhachevsky, who had been following the development of the plane closely, suggested to the designer that it might be used to transport tanks over long distances.

On 12 August, 1937 at 18.15 Moscow time a red and blue DBA commanded by Sigizmund Levanevsky left the aerodrome on a flight to the USA over the North Pole.

At 13.40 the DBA N-209 flying at an altitude of 6,000 metres, came down over Papanin's North Pole-1 base, exchanged radio broadcasts, and then proceeded on course. But less than an hour later Moscow received the first disturbing radio message: "Running out of oxygen. Cyclones up to 500 metres." Then: "Icing has started, losing height, flying at 4,600 metres." And finally: "Far starboard engine out of action. Wait...." Moscow waited, sent inquiries, and dispatched urgent bearings to all radio stations in the Soviet Union. Our country also appealed to other states to render assistance to the missing crew.

In nine months of searching 24 Soviet and 7 foreign

aircraft scanned 58,000 square kilometres of land, sea and ice. In May 1938 the Governmental Commission decided to call off the search. The mystery of the disappearance of DBA N-209 remained unsolved.

But life went on. In 1936 the scientist and designer Victor Bolkhovitinov was awarded the Order of the Red Star by the Central Executive Committee of the USSR for introducing sophisticated types of aircraft into production, advancing aviation technology and strengthening the military power of the Red Air Force.

The director of the aircraft factory where Bolkhovitinov constructed his planes wrote:

"Comrade Bolkhovitinov is an eminent aviation specialist with extensive, all-round knowledge. In his six years in the design department he has shown that he is a true representative of the Soviet school of technology, to which he devotes his technical experience, that he coordinates his work well with other scientific and production organisations, and that he is training new Soviet specialists.

"His bold approach to the solution of technological questions makes him one of the eminent designers who determine the future development of aviation. He willingly tackles questions of the utmost urgency and importance."

He began his new work with laboratory experiments on the aerodynamical characteristics of the new model which he had in mind.

A new aeroplane? What should it be like? Better than existing ones, of course, but in what way? Where was the limit to the possibilities of science, technology and production? A designer who did not rely himself on an efficient production base was doomed to remain a mere dreamer. But he would become retrograde if he did not advance production by his ideas. People may criticise a pioneer at first because they do not understand him, but once having acknowledged him they will follow him.

Aviation was developing rapidly, but the demands upon it were growing too quickly for production to keep up. Everything was subordinated to speed, that was the

main thing to be achieved. Bolkhovitinov created the BB (Bolkhovitinov bomber). It went under this name for several months. As a tribute to the team work of the design office, the chief called the new plane the S (for the Russian word meaning "high-speed"). Again the plane was the subject of the controversy: its design was unconventional in some respects—it had two engines placed one behind the other in the nose of the fuselage, and two co-axial propellers. It was referred to variously as a fighter (with a speed of 600 k.p.h.), an experimental reconnaissance plane, and a high-speed bomber. Let us not judge too harshly: everyone was right. It was an attempt to create a multi-purpose aircraft, a prototype of the modern multi-purpose plane. But the piston engine was changed and the S plane did not go into production and did not play a part in the history of aviation development.

Bolkhovitinov was an acknowledged designer who held the post of chief designer and worked in the aircraft industry when a staggeringly daring new idea absorbed him totally.

Professor Iosif Sverdlov wrote:

"Today it is hard for us to understand the full complexity of the problem which the design office tackled. At that time there was no theory of the liquid-propellant rocket engine, no tested designs of this type of engine, and no transonic flight theory. A great deal of courage was required in order to tackle this problem. Victor Bolkhovitinov got together a team of enthusiasts for the new task in the design office who were all as keen as he was."

A winged missile.... The idea had excited the minds of many aircraft designers. It was clear that the propeller was becoming an obstacle to increasing speed. So what was required was a flying vehicle without a propeller, in other words, one which made use of reactive thrust.

The designer Alexei Isayev recalled:

"It was Saturday, 21 June, 1941. I spent the day at home. By then we had already begun to doubt whether we could design an engine with a fuel turbopump. On 22

June I heard over the radio that war had begun. What were we to do? Bolkhovitinov, a keen yachtsman, was sailing in the Klyazma reservoir. I drove out to see him on my motorcycle.

"'War has broken out,' I said.

"Bolkhovitinov climbed onto the back of my motorcycle and we roared off to the People's Commissariat. He went to see the Commissar, Alexei Shakhurin, and I stayed outside with the motorcycle. When Bolkhovitinov eventually reappeared I learned that he had announced that he was designing a new plane."

Another designer who worked in the office, Alexander Bereznyak, recalls:

"Bolkhovitinov told us: 'Now then, lads, we've got a month to produce a design. Take my office and get down to work.'

"Then Bolkhovitinov, Isayev and I were invited to go and see Shakhurin. A draft resolution of the State Defence Committee was drawn up and an order was prepared. We were given a month to produce the plane (not the design or the drawings, but the actual plane). We asked for three or four months; Shakhurin heard us out, then gave us an extra ten days...."

A month and ten days.... The history of aviation contains no other example of an aircraft being created with such fantastic speed. And the latest type, too. In fact, the plane in question was a leap forward into another age, a turning point in the history of science and technology. Bolkhovitinov and his team of designers beat time and achieved the seemingly impossible, thereby amazing everyone yet again.

At the time this work was top secret. The drawings of the future plane were kept in thick steel safes.

But now the story can be told—of the work in those remote war years, of one of the stages in the long history of Soviet science and technology, and of the selfless, heroic labour of our aircraft manufacturers.

The chairman of the State Commission on the Testing of the BI-1, General Vladimir Pyshnov, recalled:

"In the Urals Bolkhovitinov took me to see his

creation and looked at me inquiringly. I must confess that the plane amazed me. Its novelty lay not only in the absence of a propeller, but also in the actual design. The plane looked like a torpedo.

"'Is it true that you constructed it in a month?' I asked.

"'A month and ten days,' Bolkhovitinov corrected me.

"'And you managed to get it done in that time!'

"'We had to.... It might be of use in the war....'

"Everyone was extremely busy. For example, in addition to my main job as chairman of the commission, I had been entrusted with calculating the take-off and flight trajectory, General Pyotr Fyodorov was in charge of flight preparations...."

Fyodorov was killed at the end of the war in a plane crash. A charming, gifted man, and talented organiser, he had come to the Academy with medals on his chest. He studied very hard, completing the course in two years. Later he became head of a special scientific research institute. He was very quick at understanding people, and everyone understood him, in spite of his reserve and laconism.

"Just wait, we'll soon flood the sky with our jet planes," he would say.

"Fyodorov brought the test pilot Bakhchivandzhi to the Urals," Pyshnov recalled. "He spent a long time selecting the right man from his pupils, and finally chose him. After introducing us, he whispered: 'Look him over, I think he's the most suitable one.' I knew many of the famous pilots of that day, from the daredevils of the twenties to hero pilots and experimenters such as Valery Chkalov, Mikhail Gromov and Andrei Yumashev. This new one was not like any of them. Somebody once said of Bakhchivandzhi that he combined all the ages of aviation. A striking definition, but an incorrect one, to my mind. He was simply a man who loved flying and was attuned to the new, born of new age. Strong-willed, composed and self-disciplined, he seemed most suitable for the first jet flight."

The observations of Captain Bakhchivandzhi during

this flight are most valuable and interesting. The climb angle was unusually acute. The forward view from the plane was excellent. Both with a running and a shut-down engine, the plane showed great stability, obeying the slightest movement of the controls. Calculation and landing with a shut-down engine presented no difficulty for an experienced pilot.

The building of the first jet plane showed what human experiment and talent can achieve. The flights of the BI-1 heralded the birth of Soviet jet aviation.

In 1947, after a long interval during which he worked at the Ministry of the Aircraft Industry, General Bolkhovitinov returned to the Academy as a senior lecturer. Having completed his work, he defended a doctoral thesis on "General Calculations for Standard Jet Planes and Methods of Testing Them".

Bolkhovitinov produced the equation which is now known by scientists as the existence of aircraft equation.

At that time Dr. Malinin wrote:

"The problem of creating a method for the system analysis of aircraft, or to be more precise, the problem of formulating the law of harmony (the relation of the whole to the parts) of an aircraft has been raised for the first time and brilliantly solved by V. F. Bolkhovitinov.

"...The strict substantiation of the idea of designing an aircraft scientifically as an harmonic whole, made in V. F. Bolkhovitinov's works, has given it the elegance of a mathematical theory, and the numerous absolute practical examples—the force of a natural law.

"...The solution of this problem represents the net result of a long stage in the development of design and construction methods in Soviet aeronautics. It is no accident that it was solved by Bolkhovitinov, who was both a designer and a military scientist. The solution of the problem of synthesising the best possible military aircraft required precisely this sort of person."

Bolkhovitinov set up his own scientific school. He trained many scientists, designers and talented engineers, among them academicians, doctors of science, heroes of socialist labour and holders of Lenin and State prizes.

On 15 May, 1967, the 25th anniversary of the flight of the world's first jet plane, there was a special meeting at the Zhukovsky Academy. The Academy order issued on this occasion read in part as follows: "V. F. Bolkhovitinov is a scientist with a broad range of scientific views. Both in design and research his characteristic feature is a feeling for the new, support of all that is still emerging, promising. He is the founder of the scientific design of aircraft.

"Working at the Academy, he laid the foundations of and developed a new scientific trend—the theory of the combat efficiency of the aircraft as a whole. With his participation and under his supervision a great deal of scientific research has been carried out in this sphere, much of which has been acknowledged with thanks and prizes.

"V. F. Bolkhovitinov's scientific school, which examines the problem of aircraft design as a single complex of technical and economic questions, and also questions of combat efficiency, has now won general recognition."

The design office led by V. F. Bolkhovitinov was a training ground for specialists on winged and ballistic missiles and rocket engines. Its successful work on the BI-1 stimulated much research in the field of jet aviation, ballistic missiles and the conquest of outer space.

The appearance of the BI-1 bore witness to the skill of Soviet scientists, designers and workers and put the Soviet Union in the lead.

Wishing to find out as much as possible about Victor Bolkhovitinov's life I addressed myself to people who had known him. They spoke of him willingly:

"A splendid camera-man. One of his films got a prize," said some of them.

"A real poet. Perhaps he would recite his poems, if you asked him."

"A first-class yachtsman. A great authority at the Vodnik Club."

"An excellent car-driver. A real specialist on cars."

And so on. All this about one man, the merits of a single person.

On Victor Bolkhovitinov's seventieth birthday Professor V. Pyshnov wrote in the newspaper *Krasnaya Zvezda*:

"New achievements require new, original methods. The work of Merited Worker of Science and Technology of the RSFSR, Doctor of Technical Sciences, and retired Major-General of the Technical Engineering Service, Professor V. F. Bolkhovitinov, is convincing proof of the truth of this statement."

He wrote this unaware that exactly one year later the same newspaper would inform its readers of the death, after a short illness, of the eminent aircraft designer, teacher, scientist, and a member of the CPSU since 1937, Victor Bolkhovitinov.

Bakhchivandzhi

There are not many photographs of him: pilots do not usually like having their photograph taken. On each of them he looks different: gay, pensive, or businesslike. The crew-cut reveals the huge forehead, the arches of the dark brows give a keen, tense expression to the large eyes, and the full lips have not yet lost their youthful lines.

When the governmental order arrived to post test pilot Bakhchivandzhi to the rear, Stefanovsky could hardly believe the telegram. He still remembered clearly the words which Stalin had spoken at the beginning of the war: "Comrade Stefanovsky, how many days do you need to form a regiment that will be capable of waging air battles?" Stefanovsky thought hard. He could not ask for too many because of the situation, and to ask for too few would be irresponsible. Stalin walked away to the window and began to puff at his pipe. He was waiting. The matter was too serious to push it.

"Three months, Comrade Stalin," the pilot blurted out, having completed his mental calculations.

Stalin walked up to Stefanovsky, put his pipe to one side, looked up with his penetrating eyes and said:

"You see, Comrade Stefanovsky, we do not have that much time. The fascists are marching over our soil,

advancing towards Moscow. I would like to give you three months, but I cannot. The Soviet people would not forgive us. I can give you three days. Do you understand me?"

"Yes, Comrade Stalin."

"I am very glad that we agree. If there are any difficulties, do not hesitate to phone me. We shall meet in three days' time, before your departure. Please come and see me."

And suddenly to send the best pilot to the rear? For several months now two air regiments made up of Soviet test pilots had been engaged in active combat. The first battles and losses were far behind. Combat experience had been acquired.... But orders were orders. That evening by the light of an oil-lamp the pilots crowded into the dugout for a farewell dinner. Grigory Bakhchivandzhi was leaving. As yet no one knew what plane he would be flying or that in a few days' time Stefanovsky, and then Konstantin Gruzdev, would also be leaving the regiment.

Grigory Bakhchivandzhi did not know either that for many months now the first Soviet test pilot Boris Kudrin had been working with Bolkhovitinov and his designers at an aerodrome outside Moscow. He had taken the glider version of this top-secret and carefully guarded plane into the air and was now preparing for ground tests. Kudrin's illness prevented him from going to the Urals with the factory to continue this work. It was there that Grigory Bakhchivandzhi, who had been appointed chief test pilot, went.

Bakhchivandzhi was born in 1909 in the village of Brynkovskaya in Krasnodar region. His childhood came at a difficult time, first the poverty-stricken years before the revolution and then the hardships of the Civil War. His schooling was often interrupted. Grigory was very fond of his father. During the Revolution, when the village was occupied by the white guards, he chose to fight with his father against the enemy. He fetched cartridges, food and water, and helped his father and some sailors escape after they had been captured.

The war ended, his father came home with the Order

of the Red Banner, and Grigory's childhood returned. He read a great deal, helped his parents on their small plot, swam, and played the accordion and the mandolin. He would sing melodious Ukrainian songs, moving, sorrowful ones, sometimes for his own pleasure, sometimes at the request of his fellow-villagers. He did not know what he wanted to be. He was interested in technical things, loved sport, and was keen-witted and energetic. He worked as an engine-driver's assistant and as a metal worker on the construction of a metallurgical works. In 1931 the 9th Congress of the Young Communist League took the Air Force under its patronage. The call of "Young Communists—join the Air Force" resounded throughout the country. And the Young Communist Bakhchivandzhi responded by submitting an application.

He graduated from a school for junior officers in 1931 and then a school for military aircraft technicians. At twenty-three he joined the Party. Grigory did not appear to be exceptional or talented in anything that he did. All his actions testified to self-discipline, diligence and honesty.

In 1935, after graduating from the Orenburg flying school, Grigory was posted to a regiment. He demonstrated an excellent flying technique, a profound knowledge of aircraft and good physical training. As a promising pilot he was soon sent to the Air Force Scientific Research Institute. He was entrusted with the testing of new planes and with carrying out complex missions. The technical knowledge acquired at the school for aircraft technicians and his ability to take well-calculated risks helped him to become a professional test pilot. Before the war he was awarded the Order of Lenin for his series of tests and their high quality. By the time war broke out Bakhchivandzhi was already a well-known test pilot. On the very first day he went off voluntarily to the front and began to fight the fascist aces in the Sixth Fighter Air Corps.

Hero of the Soviet Union, Major-General Stefanovsky remarked:

"Both Bakhchivandzhi and Gruzdev were pilots in the

Fighter Air Corps which I commanded during the Second World War. I knew them as fearless in battle.

"Our regiment was formed in the first few days of the war from test pilots. They were the best of the bunch, so to say. The men who had formerly put the new planes into the air now climbed into them to fight the enemy. Each of these pilots was most effective in battle."

Major-General S. F. Ponomarev recalls:

"In a war-time logbook which miraculously survived there is a record of what the regiment did on this or that day. From these entries one can see how individual pilots and aviation specialists, Bakhchivandzhi included, showed what they were worth. The following lines testify to the heroism, flying skill, and devotion to duty of Grigory Bakhchivandzhi.

"4 July, 1941. Two of the nine enemy planes destroyed were shot down by Bakhchivandzhi.

"8 July, 1941. Bakhchivandzhi shot down a Messerschmitt-110.

"9 July, 1941. In the Novo-Sokolniki area Captain Bakhchivandzhi shot down a Junkers-88.

"10 July, 1941. 15 combat sorties. Pilots Bakhchivandzhi and Kozhevnikov shot down a Heinkel-126.

"15 July, 1941. The following recommendations for awards have been submitted to the appropriate authorities: Bakhchivandzhi—Hero of the Soviet Union; Lieutenant Chunov—Order of Lenin; Captain Proshanov—Order of the Red Banner; Major Gruzdev—Order of the Red Banner.

"30 July, 1941. In an air battle the pilots Bakhchivandzhi, Proshanov, Krivyakov and Babin shot down two Messerschmitt-109s.

"2 August, 1941. At 6.00 hours Bakhchivandzhi engaged in combat with four enemy aircraft and was forced to land. His plane was holed in ten places and the undercarriage was damaged. The pilot landed it brilliantly on one 'leg' in his airfield.

"At 9.00 hours Bakhchivandzhi and the pilot Ananenkov were raised by the alert and flew out to the Akulovka Station area, where they encountered enemy aircraft and

engaged in combat with them, as a result of which a Junkers-88 was shot down.

"6 August, 1941. Squadron commander Captain Bakhchivandzhi and his four fighters escorted our SB bombers to the Shimsk Station area. Our fighters paralysed anti-aircraft artillery and created favourable conditions for bombing. The mission was successfully completed. All planes returned to base.

"In only one month and ten days (from July 1 to 10 August, 1941) Grigory Bakhchivandzhi flew about 70 reconnaissance sorties, bomber and strafing plane escort missions, strafing and patrol missions and coverage sorties. He showed himself to be a brave air fighter, a fine comrade to the pilots, engineers and technicians, and a true Communist."

Professor V. S. Pyshnov, Chairman of the Commission on Tests, remarked:

"I spent a great deal of time with Bakhchivandzhi, both on and off duty. He was a charming person, and the life and soul of the party: he sang well and played the accordion, the mandolin and the piano. He could make merry all night, without stimulants. He neither smoke nor drank. He used to carry sweets in his pocket and give them to children. He was fond of children and they were of him. They used to wait for him and follow him around in bands. At one New Year's party he dressed up as Father Frost and was a great success apparently."

Lieutenant-Colonel Tkachenko, executive officer of one of the air regiments in the Moscow air defence district, wrote:

"Although many years have passed since then, I still remember well serving with Grigory Bakhchivandzhi in an air regiment which was defending Moscow. Grigory had excellent knowledge of technical matters, because he had once been a technician himself, and made good use of it. He respected and appreciated the work of the other pilots. He was not only my commander, but also my friend. He was extremely well organised, always self-controlled, smart and tidy, clean-shaven and smiling."

A very accurate portrait. It must be added that

Sergeant Tkachenko's friendship with Bakhchivandzhi helped him in later life. He learned from Bakhchivandzhi to control himself and his actions. Later, on hearing of the death of his commander, Tkachenko decided to become a pilot. He entered a flying school and after graduation asked to be posted to the Moscow air defence district. When his doctors ordered him to give up flying for health reasons, Major Dmitri Tkachenko, grade one pilot, transferred to staff work.

Everyone who knew Bakhchivandzhi was impressed by his courage and masterly air attacks. In one battle several fascist aces attacked the plane of the regimental commander, Lieutenant-Colonel Stefanovsky. It happened not far from the aerodrome in full view of the regiment's pilots. The regiment's main forces were out on a mission and only a few pilots had returned to base after running out of ammunition and fuel. Among them was Bakhchivandzhi. Five or six pilots had no planes. They were all looking up at the sky and the strange merry-go-round that was going up there. The German pilots were chasing a single Soviet plane, firing round after round at it, but they could not shoot it down. Bakhchivandzhi had not noticed this air race on his way back to the aerodrome, because at the time it had moved a little further off, and he had landed as usual.

Seeing what was happening in the sky, he took off again without getting fresh supplies of fuel and ammunition. He plunged into the midst of the zooming planes, cornered one and fired. It plunged to the ground. Stefanovsky caught sight of Bakhchivandzhi's plane and realised from his sparing use of ammunition that his supply of it was limited. The battle did not last for long. Stefanovsky shot down a plane that was threatening Bakhchivandzhi, and Grigory shot down a Dornier-215 that was about to attack Stefanovsky. Then, all of a sudden, the fascists disappeared. The sky became quiet and peaceful: the engine in Bakhchivandzhi's plane had stopped. Using the inertia speed margin, Grigory turned and landed the fighter.

The pilots dragged Bakhchivandzhi out of the cockpit

and were about to toss him joyfully into the air, when they discovered that he was wounded.

After this battle Stefanovsky decided to recommend Bakhchivandzhi for the title of Hero of the Soviet Union.

This is why it was so hard for the regimental commander to part with his best pilot.

...Bakhchivandzhi became a fully-fledged member of the design office team. His working day began in the chief designer's office and continued by the engines. The liquid-propellant rocket engines were still proving difficult to control. The leading engine designers Alexei Isayev and Leonid Dushkin were doing all they could. The engine had become the main factor in the preparations for the flight. Moscow was speeding up the tests. The situation at the front demanded a new weapon. A high-speed interceptor-fighter was needed. The creation of the new plane was not simply an effort to break the speed record. Any gain in speed in wartime means victory, thousands of lives saved. And he, Bakhchivandzhi, realised this full well. But Bolkhovitinov was a scientist, not a primitive craftsman. The creation of the new presupposes an advance in science. They had to create a plane and advance science. And it was so hard. Perhaps they should not waste their energy on trying to get metal. Let the plane be a wooden one for the time being. It would only be in the air for three to five minutes, but it would be faster and higher than the enemy aircraft, and height is a guarantee of success in battle.

Bakhchivandzhi asked the chief designer to begin rig tests, flight preparations for a plane ready for air tests, but the chief's thoughts were racing ahead and he saw his creation as a more perfect plane capable of extraordinary flights. Bolkhovitinov was trying to fit his ideas in with the prescribed characteristics. The main points were: speed—800 k.p.h. and engine thrust—1,100 kilograms. Although the plane was a wooden one (pine and plywood) they must keep the small dimensions.

Winter brought fresh news from the front. The Soviet troops had begun an offensive. The enemy was on the retreat.

The production meeting was an ordinary, business meeting where tasks are explained in more detail. The chief designer arrived in his general's uniform, which he had never worn here before. Bolkhovitinov was forty-four. From his excitement, the eyes which had lost their fatigue, the vanished wrinkles, people realised that something important was about to be announced.

Fingering his buttons, he said in a quavering voice:

"It is a time of great rejoicing for our people. We have begun to liberate our homeland. Now there is no force on earth that can check the Soviet armies. You know as well as I do that our plane is needed badly at the front. I shall request Moscow for permission to start flight tests in March. I ask you to do all you can, comrades."

The general was always brief and composed. His calm, even voice never acquired a metallic ring, even when something unforeseen happened, mistakes or hitches. The designers, engineers and specialists worked day and night. Each of them understood his role and worked conscientiously for victory.

Bakhchivandzhi carried out the rig tests, "getting the feel" of the plane. Bolkhovitinov recalled:

"As not only the engine but also the tanks, pipes, and handling of the engine were to be tested on the rig, the rig was built as the fuselage of the plane, with the engine, its controls. the fuel system, the pilot's seat, the instrument panel and the armour backrest installed in it. On this rig the engine and the plane were perfected—together.

"After several months of work the defects revealed by the tests were removed, and we set about training the pilot. Bakhchivandzhi soon mastered to the specific features of starting the engine and controlling the engine thrust. He carried out simulated flights with full fuel utilisation. During one of the tests the engine would not start at first. This had happened before several times. Bakhchivandzhi made another attempt to start it and ... the combustible fuel, which was ignited by the spark plug during the second attempt, knocked and burst the combustion chamber. The nozzle flew off into the lake.

The side walls of the combustion chamber flew away, as in a projectile. And the massive injection head, which contained the injectors, flew forward onto the fuel and oxidant tanks, smashed them and hit the armour backrest of the pilot's seat, but did not pierce it. Nevertheless the blow of the armour backrest threw Bakhchivandzhi forward with such force that he hit his head on the instrument panel. Fortunately he only received a bad cut on one eyebrow. For us, designers, however, the psychological damage was more important than the physical injury. We waited anxiously for his reaction to the accident, which could have caused his death, expecting him to say: 'The devil take the lot of you. Get the engine working properly first, then we'll talk about flight tests.' It would have been understandable if he had refused point-blank to continue testing. But Grigory Bakhchivandzhi was not that sort of person. He did not refuse to continue the tests. Quite the reverse. He was the first to argue that the rig should be set up again as soon as possible and the tests continued. This took great courage."

Arvid Pallo, a propulsion engineer and a most active and energetic assistant of Leonid Dushkin and Alexei Isayev, describes that day as follows:

"The engine blew up. We discovered the reason later. At the time, of course, I was not in a state to think about it—my face was covered with nitric acid and I had received a blow on the shoulder. Luckily I was wearing my glasses, or I would have been blinded. I remember the thought flashing through my mind that I must not breathe, or my lungs would be injured. I groped my way to the door. It was somewhere on the left. Then my conscience pricked me. What about Bakhchivandzhi? Was he alive? The barn was full of smoke, and you could not see anything. Overcoming the pain, I groped for the seat, felt a jacket collar, and pulled. The pilot moved towards me. So he was alive. I felt a great wave of relief. I do not remember how I dragged him out of the barn. I found myself lying in the snow. My face was burning with pain.

"When we regained consciousness, we looked round

and found ourselves in hospital. Our injuries were painful: Bakhchivandzhi had a badly damaged forehead and light burns, and I had all the skin off my face.... They had bandaged our heads so that only our eyes remained uncovered, peeping out of the gauze. We were given beds next to each other."

Bakhchivandzhi's stay in hospital revealed new, hitherto unknown aspects of his character to those who were with him.

One day he said to Arvid Pallo in the next bed:

"Our history is extraordinary rich. You would be surprised if I told you that our people have always dreamed of flying to other planets. In July 1924 the newspaper *Izvestia* published some letters from peasants in the village of Dyatlino. Would you like me to read them?"

Pallo nodded his agreement. Grigory took some sheets of paper from his bedside cupboard.

"Listen. 'Recently,' he read, 'newspapers have often reported that scientists are looking for means of communicating with the planet Mars.... Reading the newspaper, we, peasants of our village, became extremely interested in these questions and after lengthy conversations and arguments, in the course of which many different proposals for achieving the above-mentioned aim were put forward, we thought up several plans which we decided to send you. Perhaps they are no good, but you will excuse us on account of our peasant background and lack of education.

"'Firstly, what about building a huge aeroplane? It could probably not fly where there was no air, so in front of the propeller there should be two or more pipes, which would release air and make it possible for the propeller to work. To stop the air from dispersing when it came out of the pipes, devices should be provided which would pump it back into the tank containing the air supply. This is the conclusion of the first proposal.

"'The second proposal. Let us take the example of our planet Earth. It moves in airless space, but is surrounded by air which it draws towards itself. What about building

an aircraft that could retain around it enough of the surrounding air to move in airless space?

"'For this one would need to know what substances are most capable of drawing air towards themselves. We are sorry this is written so badly and clumsily.

"'Our address: Dyatlino village, Synkovo *volost*, Dmitrov *uyezd*, Moscow gubernia.

"'P. Volkov and M. Bykov.'"

On one of the evenings that the Chief spent by the pilot's bedside, he saw books by Marx and Engels on a stool. To make sure he was not mistaken, Bolkhovitinov picked one of them up.

The vigilant Bakhchivandzhi noticed this and explained to the Chief:

"I love books. My one regret when I am dying will be that I have not read enough. There just isn't enough time. Have you read the answers of Karl Marx and Frederick Engels to the half-serious questionnaire "The Confession" compiled by Marx's daughters?"

"Yes, I have," replied Bolkhovitinov, not knowing what was about to follow. He strained his memory to recall the questionnaire.

"I think they reveal a remarkable sincerity."

Bakhchivandzhi lay back on the pillow and became lost in thought.

15 May, 1942. That day was to mark the beginning of a new era in the history of aviation, the era of propellerless aircraft. It had been fixed by a State Commission. The date was kept secret. The press, the test pilots, and even those who were taking part in the flight, did not know the exact test schedule. A miracle was taking place, but for the time being it was known to only a few.

Members of the State Commission, newspaper photographers and cameramen arrived at the aerodrome. Thanks to the photographs and films the unique moments of the BI-1 test were preserved for posterity.

The plane with its long nose and smooth lines, although it was made of wood, and the absence of a propeller, did not conform at all to the conventional notion of an aircraft.

On 13 May, after making a few hops on the BI-1, Bakhchivandzhi wrote in the test logbook: "Hop of one-and-a-half metres. Smooth acceleration. Lift-off without bumping.... Ready for flying."

Shortly before the first flight, when it was almost dark, Bakhchivandzhi decided to begin runs along the runway. The plane was invisible in the darkness. All that could be seen was the jet of fire behind the engine. Next day he made a hop. Everything went smoothly. The Commission met again. The pilot was very experienced, of course, but the plane was an unusual one. They were worried about the landing with a shut-down engine, because if the calculations were incorrect the plane might undershoot or overshoot.

The night before the flight was an anxious and sleepless one. Low grey cloud lay over the aerodrome. Fortunately, the sky cleared by evening, and in the morning the sun came out, as if to order. Bakhchivandzhi was cheerful and smiling. He gave a farewell wave. There were none of the usual pre-start commands. Then came a terrible roaring sound. It made the ears ring, and people wondered anxiously whether the wooden columbine could stand up to the power of the engine. A jet of fire three or four metres long came out of the nozzle. The plane moved off, gathered speed, and began to run around the airfield.

Lieutenant-General V. Pyshnov, Chairman of the State Commission, recalled:

"Feeling the plane accelerate, Bakhchivandzhi began to increase the angle of ascent. From the ground it now seemed very small, but the jet of fire behind the nozzle was still burning brightly. The altitude was more than 1,500 metres. The plane began to do a turn. When it had described a semi-circle, the jet of fire disappeared and out of the nozzle came a reddish puff of smoke. The active part of the flight was over. About a minute had passed since the engine was started. Now the plane sped along silently, gradually losing height and approaching the runway. The landing was somewhat rough, and the miniature legs of the undercarriage broke. This was due

to a special feature of the velocity profile of the wing—the small angle of attack.

"...The plane quickly came to a stop. It was immediately surrounded by a dense crowd. The pilot was dragged out and borne aloft on people's shoulders."

That evening the factory workers arranged a celebration in honour of the first man to go up in a winged missile. The celebration took place in a small aerodrome, although it was a great event for the Soviet people and the world as a whole. But that was how it had to be at that time. Above the jubilant crowd hung a banner with the words "Greetings to Pilot Bakhchivandzhi who had made the first flight into the jet age". The scientists, engineers and technicians fully appreciated their comrade's achievement. The Chief gave permission for a dinner, and the food supply officer managed to get hold of ten kilograms of smoked sausage, a rare delicacy at that time.

Next day a report was sent to Moscow about the testing of the BI-1, the first jet aircraft in the USSR, with a recommendation that G. Y. Bakhchivandzhi be awarded the Order of Lenin. Bakhchivandzhi's commanding officers wrote:

"Comrade Grigory Yakovlevich Bakhchivandzhi is a test pilot with an excellent technique in flying fighter planes. He flies all the fighters in the Soviet Air Force and also foreign ones, such as Tomahawk, Hurricane, Messerschmitt and Heinkel. His work as a test pilot is always exemplary. Comrade Bakhchivandzhi's test flights are characterised by precision in carrying out the prescribed operations, accurate recording, and the ability to provide an exhaustive assessment of the behaviour of the aircraft and engine."

"Flying the type of aircraft in question," wrote Bakhchivandzhi in his official conclusion, "by comparison with usual types of aircraft, is extremely pleasant, because the pilot does not have in front of him a propeller, an engine, or noise and exhaust gas which gets into the cockpit. The pilot sits in the front section of the plane, with an exceptionally good forward view and a much better rearward view. The control panel is well arranged

and easily observed, the cockpit is not overcrowded, and there is easy access to the controls. In ease of control the plane is superior to modern fighters."

In January 1943 Bakhchivandzhi took the BI up again. This flight too was a success.

Moscow attached great importance to completion of the tests on Bolkhovitinov's plane and was considering a design for a new plane with two jet engines.

Bakhchivandzhi was summoned to Moscow to give a report. The testing of the BI was entrusted to the pilot Konstantin Gruzdev.

The Stand-Bys

At that time, in 1942-1943, this word was not used as widely as it is now.

The BI was being prepared for the production line. Stand-bys were required for the chief test pilot.

The brilliant pilot Boris Kudrin was appointed chief test pilot of the BI-1, in accordance with the wishes of the Chief Designer. Bolkhovitinov knew Kudrin as one of the most effective test pilots in the Air Force Scientific Research Institute.

Kudrin got down to work quickly. He studied the design of the glider, the control system, and the aerodynamics of the take-off and landing of the planes of this design. Time was short. In order to speed up the work, Kudrin suggested testing the glider in the air. And this was what they did: a Pe-2 towed the future BI.

Thus many characteristics were checked: the stability, control power and gliding qualities of the plane.

On learning that Kudrin lived in Moscow, I arranged a meeting with him. It took place on the day before his 70th birthday—in the autumn of 1967.

The conversation naturally turned to the BI.

"Flying the first jet plane in the world was one of the most memorable events of my life," said Boris Kudrin. "Probably because it involved a certain amount of risk. Firstly, the speed was high, approaching the sound

barrier; secondly, one of the fuel components, nitric acid, possessed immense destructive power....

"I only saw Bakhchivandzhi's last flight, because I spent a long time in hospital. When I could walk again, still on crutches, I went to the aerodrome. The crash took place before my eyes.

"Bakhchivandzhi flew up to about 1,500 metres, did a 180-degree turn in the direction of the aerodrome and began to accelerate. His speed increased considerably, and it was very high for that time. When the plane unexpectedly went into a dive it failed to recover, and crashed into the ground. All that was left was a column of dirty smoke. The nitric acid was burning."

When he was well again, Boris Kudrin went on flying the BI, or, rather, he was the only pilot with a thorough knowledge of the first Soviet plane with a jet engine.

During one of Kudrin's flights on the BI-1 the undercarriage leg was torn out by the air flow during an ascent.

"At that moment I had one thought only in my head," the pilot recalls. "Could I keep the aircraft from overturning?"

After fuel utilisation Kudrin prepared to make a landing. But the gliding aircraft was losing height more quickly than it was supposed to.

"I could not see the airfield," Kudrin said, "and could not work out how far away from it I was. Below me was forest with occasional clearings. Should I find a clearing and land the plane or try to make it to the airfield? In the first case, there was almost bound to be an accident and the new plane would be damaged. I chose the second course, but I must admit that right up to the last moment I was tormented by doubts as to the correctness of my decision. I saw each of the clearings slipping away beneath me as my last chance. I realised that soon I would only be able to fly on the level....

"That moment arrived. I began to lose height with what seemed to me catastrophical speed. The ground came closer. It was too late to do any turns now. Then I saw the airfield in front of me.... The plane was saved."

Not long before Bakhchivandzhi's crash Konstantin Gruzdev was killed testing the American Aircobra.

He was the second pilot after Bakhchivandzhi to take up the BI with a live engine.

Gruzdev served in the 402nd fighter air regiment, first as a squadron commander and then, after Stefanovsky was posted, as regimental commander. The pilots liked him for his even, calm temper, and calculated risk-taking, and regarded him as a worthy successor to the legendary Stefanovsky. Always preoccupied and even a little melancholy during combat missions, in his free time he enjoyed a joke, a film or a variety show.

Konstantin lost his parents at an early age. He wandered homeless, lived in an orphanage, received a schooling in which he proved to be an able pupil, worked as a stevedore and as an acrobat in a circus which was where he learnt self-control. He applied eagerly, but very timidly, for admission to the military flying school, and was accepted. As soon as he became a real pilot he realised that he could never be anything else. After the school he served in a regiment and fought in the Far East against the Japanese. As a top pilot he was transferred to the Air Force Scientific Research Institute and tested five new combat planes before the war.

Gruzdev was a famous test pilot who loved his work and even devoted his spare time to aviation, working on test flight theory and aerial combat tactics. He was the first to apply banking to decrease the radius of banked turn which subsequently became an accepted combat method among Soviet pilots. Konstantin Gruzdev made about 300 combat sorties and shot down 19 fascist planes.

At the front he joined the Party. He became known far and wide for his combat skill. His name appeared in newspapers and poems were written about him. Shchipachev's poem "The Fighter" was particularly popular.

Konstantin Gruzdev met his death in February 1943.

The testing of the BI-1 was completed by Boris Kudrin.

Among Bolkhovitinov's papers, which were handed

over to me by his wife Natalya and their son Oleg, I found the speech which he delivered on his 70th birthday. It was typed on a half a sheet of paper and full of profound philosophical reflections on his experience of life.

"I cannot complain about my life," said General Bolkhovitinov to his colleagues. "It has been a difficult and fairly interesting one, which has always corresponded to my inner inclinations and to the needs of my country...."

He devoted his whole life to the challenging cause of asserting the new, enhancing his country's authority in aviation. Entirely without vanity and conceit, he said this simply because he wanted to place the test pilots next to himself and the design office. "If I have achieved anything in science and aircraft design, I owe this largely to our splendid test pilots, who share equally with the designer all the glory and success that the work brings."

Bolkhovitinov recommended that Bakhchivandzhi be awarded the title of Hero of the Soviet Union. His request was granted, but he did not live to learn of it.

The names of the first test pilots to fly jet planes are inscribed in the history of our country's aviation.

Conclusion

On 27 March, 1943 Captain Bakhchivandzhi made his seventh speed-testing flight. At that time 600 k.p.h. was the ceiling in flying. That day the scientists were hoping to set up a new record of 800 or 1,000 k.p.h. True, no one knew how the plane would behave at this speed. But just as each journey begins with the first step, so each test commences with the encountering of unknown phenomena. The plane's speed reached 800 k.p.h. and then passed it, the trail of fire behind the plane disappeared—the engine had stopped. The plane had now become a glider and, as usual, the pilot flew it towards the airfield. It should not be forgotten that landing a modern supersonic fighter with a narrow wing profile is a very complicated business. All the BI calculations had been done for a

high-speed fighter. Gliding in it was no easy matter. But on this last flight after the compulsory turn the plane descended smoothly towards the ground. Onlookers became worried: "Why isn't Bakhchivandzhi doing a second turn, banking?" But the plane came steadily down. Had something happened to the pilot? A few seconds later the plane plunged into the ground.

Grigory Bakhchivandzhi was no more. How hard it was to believe that. Only yesterday he had played his beloved Tchaikovsky and talked cheerfully to the technicians about the great importance of the plane for the front. And now he was no more. The cold spring rains had begun, and we were in for a long spell of bad weather. Bakhchivandzhi was buried on the edge of the airfield. They did not want him to be parted from flying, even in death. He was given a soldier's farewell.

The solute was repeated three times. Then the national anthem was played.

The Chief gave a speech:

"Many of you have known Comrade Bakhchivandzhi longer than we have.... We got to know him when he joined our work, which contained much that was unknown and consequently much that was dangerous. He joined our ranks fearlessly, with the enthusiasm of a fighter for the new that is essential for those who seek to penetrate the unknown. He was not the sort of a person whose enthusiasm lasted until the first setback, the first piece of trouble. He was a man of great courage born not of external circumstances, but of consciousness, will, desire and belief in the rightness of his cause....

"By his flight he took a new step forward, made his final contribution to the advancement of aviation and, at the same time, revealed obstacles the overcoming of which will save his successors from a repetition of what has taken place. By his death he has given life to many. And this we shall never forget."

And he kept his word.

Today all Soviet people know about Grigory Bakhchivandzhi.

He is the subject of many articles and books. A

documentary film has been made about him, and his feat has provided material for many feature films. Streets in Donetsk and the village of Brinkovskaya have been named after him. His name was also given to one of the craters on the dark side of the moon. There is a medallion with an engraved portrait of Bakhchivandzhi. In April 1973 the Presidium of the Supreme Soviet of the USSR awarded Grigory Bakhchivandzhi the title of Hero of the Soviet Union posthumously for the heroism and selflessness which he showed in testing the first Soviet aircraft with jet engines.

The winged missiles designed by Bolkhovitinov did not appear on the fronts of the Second World War. But the knowledge acquired and the rapid growth of Soviet science and industry made it possible for a number of design offices to produce better modifications of jet planes.

In 1945 the designers Mikoyan and Gurevich produced the Mig-9, an all-metal monoplane with twin jet engines, which reached the speed of 920 k.p.h.

At the same time the test pilot Mikhail Ivanov tested another Soviet jet plane, the Yak-15 from Alexander Yakovlev's design office. On the basis of the piston-engined fighter Yak-3, popular during the war, his team produced a single-engined jet plane with a speed of 800 k.p.h.

Semyon Alekseyevich Lavochkin's team did some fine work on the development of jet aircraft. It produced a plane with a speed of 805 k.p.h.

Then in 1947 Lavochkin's design office produced the first swept wing plane. This plane provided a basis for the study of the stability and controllability of aircraft with swept wings. Its speed was close to the speed of sound. The next model reached the sound barrier and enabled our designers to proceed directly with the construction of supersonic jet aircraft.

Soviet designers produced new versions of passenger jet airliners. The design teams of Andrei Tupolev, Sergei Ilyushin, Oleg Antonov and Alexander Yakovlev were particularly successful in this field.

The work on the BI-1 not only had an indirect influence on the development of spacecraft and all types of rocketry. Many of the men who began work at that time were later to play a leading role in the establishment of rocket and space technology.

Bombs and Poetry

Smartly dressed in new suits and wearing their decorations, they greeted one another with long, affectionate embraces and youthful slaps on the back, and some were unable to restrain their tears. They reminisced about the war, the friends who had not returned from the battle-field, the years spent in uniform.

These veterans of the Tenth Moscow-Königsberg Air Reconnaissance Regiment which was awarded the Suvorov Order, third class, and the Red Banner had come to Moscow from all over the country. Victor Grubich from Lubertsy, Fyodor Borisov from Rzhev, Victor Kulvanovsky from Gorky, Alexei Chekalovets from Krasnoyarsk, Oleg Bogdanov from Ryazan, Nikolai Shcherbatov from Minsk, Yakov Soldatenkov from Serebryanye Prudy, and so on.

"My dear Sasha...."

"Kolya, is it really you?"

"Mikhail, it must be twenty years since we last met...."

There were exclamations of surprise and sentimental displays of affection. Many of them had retired now, many were still troubled by wounds received at the front, and some had passed away.

"Our radio operator Nina Kazakova is a grandmother now! How time flies!" the veterans lamented.

And then announced happily:

"Ilya Safronov dreamed of flying round the world after the war. And now he has. Good for him!"

"In the Smolensk Museum there is now a whole section devoted to the navigator Vassily Gorbatenkov from our regiment."

"Excellent. Vassily deserves it."

Vassily Gorbatenkov! How did he win immortality in a regiment that produced thirteen Heroes of the Soviet Union?

I first saw the name when I was preparing the diary of the regiment's commissar, Georgy Dubinin, for publication. It was then that I became interested in Vassily Gorbatenkov as a most remarkable person.

I began to seek out his friends and acquaintances and the men with whom he served in the regiment. I managed to find the diary which he kept from the first day of the war.

The diary bore the inscription: "To Sofia and my dear daughters Galina and Nina." Shortly afterwards I received a letter from Gorbatenkov's daughter Nina, giving me the address of her mother and sister.

And so the search went on, yielding more and more information.

"I remember Gorbatenkov well," M. N. Gurevich wrote to me from Smolensk. "We studied together at the Smolensk Teacher Training Institute in the Language and Literature Department."

Fyodor Tsarev, until recently editor-in-chief of the journal *Sovietsky Voin* (Soviet Soldier), said:

"We lived in the same house, studied at the same Institute and were friends. Vassily was a remarkable person, dedicated and high-minded. He was enthusiastic, impetuous, talented, honest and hard-working. This is how I remember him, but he was more profound and interesting than I have been able to describe. The young people absolutely worshipped him."

Just before war broke out, in 1941, the book *Gorky in Smolensk* appeared, largely due to Gorbatenkov's efforts. He compiled it and wrote a long introductory article for it about Maxim Gorky's visit to Smolensk in 1899 and his links with the town's workers and intelligentsia. The article was written in a lively, interesting manner and made extensive use of documentary and archive material.

The book was republished in 1947. On the back of the title-page on the left-hand side were the words: "The compiler of the present volume, V.E. Gorbatenkov, died a

"In general, it is ridiculous, absurd, to reject landscape poetry. We have a great need for poems about nature.

"...What we have to arm ourselves against is not landscape poetry, if it is true poetry, but experiments void of ideological content and irresponsible treatment of the great themes of our time. The modern writer is not indifferent to all that is beautiful in life, for beauty, as Chernyshevsky said, is life itself, and he will not let anyone deprive him of the right to poeticise nature. We are proud of the greatness of our heroic age which had generously presented us with unlimited opportunities for developing our qualities, intellect, aesthetic principles and talent. The lyrical poet who paints nature as it is seen by the new Soviet man is a modern poet in the full sense of the word, but a poet who does not understand the events taking place around him cannot be regarded as a modern poet....

"This does not apply to poetry alone. Let us take a writer like Mikhail Prishvin, for example. He is a real naturalist in our literature. His landscapes are delightful. And he would appear not to touch upon important social questions in his work. But just try on this basis to say that he is not a modern writer. It cannot be done.

"Nor is it right to criticise a writer for concentrating mainly or exclusively on developing historical themes."

A voice shouted from the audience:

"'How do we know whether he is a modern writer then?'

"From the way in which he presents the theme, the historical interpretation which he gives to it. If he treats it from our viewpoint, from the aspect of the Marxist-Leninist interpretation of the historical process, he will please the Soviet reader, but if he does not, he will sin against the truth and distort reality. *Pravda* recently praised Sergeyev-Tsensky's *Hard Times in Sevastopol.* As we know, this epic work reflects our country's past, the Crimean campaign of 1854-1855. But the great artist, which Sergeyev-Tsensky undoubtedly is, brought out this tragic period in Russian history so forcefully, showing the heroism of the Russian sailors and the strength of the

people so profoundly and authentically, that his work strikes a very modern note....

"Let us now pose the question in this way: what is it that puts a poet firmly on his feet? His own poetic style, vocabulary and devices for the treatment of themes. We can easily tell the difference between Pushkin's poetry and Nekrasov's, Nekrasov's and Tyutchev's, Tyutchev's and Bryusov's, to say nothing of Mayakovsky's. Not only from the subject matter, but from the actual intonation, the whole orchestration and architectonics of the verse....

"It is no easy matter to make one's way as a poet, to find one's poetic voice, and determine one's place in the ranks. Those who manage to do so deserve our praise. They have taken the first fortress, after which new victories will follow...."

Gorbatenkov proceeded to point out that poets should also be socially aware people. He criticised a young poet for his superficial treatment of a theme.

"...Life passes without him noticing it, and therefore his poems contain a great deal of pretension, aplomb and false affectation, and very little of the stuff of real life. All of us have suffered from this disease to some extent and still do. I have been rightly criticised for excessive emotion and I have to explore new paths which, I think, I am doing, but here it is a question of the writer's attitude to life."

"But isn't there a lot of emotion in Mayakovsky?" someone remarked.

"Oh, what a comparison! Mayakovsky was an exceptional phenomenon, and one that has not yet been fully understood and appreciated by our critics. It may take decades before his exciting and unique heritage is fully absorbed. I should be very happy to be able to write so profoundly and with such poetic force about modern times as Mayakovsky. And his emotion is a model of revolutionary propaganda, not skating about on the surface of the subject."

Defending himself against those who had criticised his poems "Awakening" and "A Change of Landscape" for not bearing any relation to our day, Gorbatenkov said:

"I make no claim to skill, I have done little for literature as yet, and I am still learning, but when a statement is untrue I cannot remain silent. A great deal has been said about 'Awakening'. Everyone seems to think that it is a perfectly modern poem and, they even say, well written. May I remind you of 'A Change of Landscape':

Go out into the night and stand.
The grass sings low, owls hoot in flight.
Of wormwood smells the marshy land.
Ah, yes. The old men are quite right.
Life here was hard. Both beast and man
Sought shelter in the same abode.
Then o'er this poor and mossy land
With time there came a great highroad,
Then farm artels, schools, buildings, spires,
Bridges o'er the river, and telephone wires.
And people saw to their surprise
A landscape change before their eyes.

"I do not think that you would date such a poem to before the revolution.

"But now permit me to recite a poem of a different kind, so that no one should think that I write only landscape verse. It is called 'The First Jump'.

An aerodrome. A morn in June.
We take off when the signal's given.
Then circle with our wing of blue
And fly at top speed through the heavens.
Oh, on we go and ever higher
Flying on course, earth left behind,
The plane shakes from the engine's roar.
The wings are cradled by the wind.

So, Vassily Gorbatenkov was a critic and poet. His first collection of poetry *Courage* was published in Smolensk in 1940. It contained thirty poems, of varying form, subject matter and poetic intonation. Yet all of them were imbued with the same ideological fervour characteristic of Soviet life in the pre-war period. Gorbatenkov's poems also show

that he shared deeply in the interests, joys and sorrows of his people. The events of the Civil War, the construction of new towns, mines and factories, the record-breaking flights of Soviet pilots, the widespread interest in flying and parachuting, the international tension connected with the growing Nazi aggression, all this produced a sensitive response in the poet.

He did not have time to do a great deal and his main books remained unwritten, but the speeches, poems and diaries which he left behind show him to have been a man of great culture, a true patriot. His diary for the war years is of special interest.

23 June

The radio is reporting on the course of the war. The enemy has proved to be the stronger. He has donned the armour of planes and tanks and is bombarding our land by the Western frontier. Our Institute is under martial law, but work goes on, with examinations and lectures as usual.

26 June

War is stalking over our country. Its stinking breath spreads over our towns and villages. The Soviet land is afire. There is a constant thundering in the Ukrainian steppes and the Byelorussian forests. Day and night trains speed eastwards, carrying women, old men and children to distant parts. They are pursued by Goering's winged marauders.

A 1,000-kilogram bomb fell on a wooden house, smashing it to pieces and leaving a huge crater big enough to take a building. It swept three single-storeyed houses and the roof of a two-storey kindergarten into a ravine. By the ruins a half-naked woman weeps beside a bloody corpse, the lifeless body of her 17-year-old son. The inhabitants dig out the crushed body of an old man from under a pile of stones and logs....

Stunned by what he had seen, Gorbatenkov set off at once for the district military enlistment office. There were armed sentry post by the doors. In the corridors and on the staircase he found calm, businesslike people with serious faces.

Gorbatenkov was surprised by this calm composure.

"I request to be posted immediately to the front," he said to the district military commissar, Major Chernetsov.

Chernetsov gave a long, hard look at the impatient visitor. How many he had seen already. It was only four

days since the war began, and there were already thousands of them.

"I can't do that," the Major said wearily. "Wait for special orders."

"I'll go to the regional office then."

"Don't do that. You'll just be a nuisance. The situation is changing very quickly."

The situation was indeed changing very quickly.

That night orders arrived to send the students of the Teacher Training Institute to build defences. Teachers who wished to go to the front were to present themselves at the military enlistment office.

All night a long column of students walked to the Lyada district, where they were to dig anti-tank ditches, trenches and shelters.

In the morning a group of teachers hitched a lift back to Smolensk. That night the fascists bombed the town again.

Smoke hung over the town; houses, offices and factories were burning. All transport was mobilised to carry away the wounded. Proletarskaya, Pochtamtskaya and Universitetskaya streets were in ruins. A suffocating smell of burning hung over the town centre.

15 July

It is getting light. The sky is clear. There is artillery fire in the region of Krasny Bor and Gnezdovo. We are forming up along the Moscow-Minsk highway.

The terrible word "retreat" is repeated from mouth to mouth. Retreat to where?

To Yartsevo. We are on a hill to the west of Gedeonovka. The whole upper section of the old town is encircled by the tall Godunov Wall. The sharp gilded spires of the Kremlin gleam in the rays of the rising sun. Sovietskaya Street runs down steeply to the Molokhovsky Gates.

Further left, on Kozlovsky Hill, is the shining asphalt of Krasnogvardeiskaya.... There is the tower, and across the ravine stands a two-storey wooden house, No. 55a, a house that I know and love.

It was cold and damp, there was not enough firewood, the gutters were broken and the electrical wiring was fitful, but these were minor inconveniences, temporary defects. They were quickly forgotten, obliterated by the joys of life.

...I imagine myself going into the flat. I am greeted by my favourite

books. I see the collection of Russian and foreign classics. The pages of unpublished manuscripts whisper to me. The collection *Gorky in Smolensk*, the fruit of much labour, still smells of printer's ink. My heart thrills at the sight of "My poems, living witnesses" of all joys and sorrows, in the slim volume *Courage*.

I have always loved you, my town!

But today, in this morning hour, I love you more strongly than ever before. And I shall fight, no matter where or how, to the last breath, for you, my Smolensk, who nurtured me and sent me out into the world.

Vassily Gorbatenkov was the fourth child in the large family of a railway worker. He was born on 2 October, 1910 in a railway hut near the station of Katyn. His father worked on the railway as a trackman for thirty-three years, until he died of a heart attack.

For twenty-five years his mother was a crossing-keeper on the same track.

When the White Poles invaded, the transport workers were mobilised to repulse the enemy, and there began what Gorbatenkov describes in his autobiography a "time of affliction". They lived in railway carriages, moving from one station to another, with little to eat. Vassily grazed the cattle in the villages, went to school, and wrote his first poems.

In 1929 Gorbatenkov entered the Smolensk Teacher Training Institute. He studied, worked and helped his younger sisters and brother. On graduating from the institute in 1932 he was sent by the town party committee to a garment factory to edit the factory newspaper *Bolshevistsky Put* (The Bolshevik Way) which had a large circulation.

In 1933 he was called up for service in the Red Army. He wanted to become a pilot and dreamed of the Kacha Flying School, but he was sent to a school for aviation specialists, from which he emerged as an aircraft technician, 2nd grade.

After serving in the army he returned to Smolensk and began to play an active part in the town's literary life. He ran literary circles, spoke at discussions, travelled around with agitation brigades, and wrote poems and critical articles.

He was appointed executive editor of the regional newspaper, and then deputy editor of the newspaper *Bolshevistskaya Molodezh* (Bolshevik Youth). He taught literature and Russian language in the top forms at a school and in the Teacher Training Institute, prepared his own books for publication, played an active part in the work of the regional branch of the Union of Writers, and engaged in research, studying the work of Maxim Gorky.

Professor Daniil Pogulyayev, who helped Gorbatenkov collect material for the book *Gorky in Smolensk*, described him as follows in a letter to me:

"V. E. Gorbatenkov produced a very good impression. He was above average in height, handsome, well-built, and extremely likeable. He had an attractive smile and was always friendly. When I first made his acquaintance, he was still a very young man. During our meeting and conversation I admired both his external appearance and a kind of inner beauty. His eyes were affectionate and intelligent."

Some more entries from the diary:

19 July

Last night was like the one before. The anti-aircraft guns boomed away until dawn, and the sky was criss-crossed by searchlights. We transported ammunition along a brightly lit road.

In the morning there was a very pleasing incident. A U-2 liaison aeroplane was returning to its aerodrome, when it was attacked by a Messerschmitt-109. When the Nazi swooped down to shoot at the harmless phaeton, the U-2 began to lose height at reduced speed. The Nazi miscalculated and crashed. So the pilot was right when he informed the commander jokingly: "I emerged the victor, Colonel. There's one Nazi less now...."

23 July

The Party Committee has decided to put out a newspaper. The editorial board consists of Kondratov from Orel, Kontush from Minsk and Buyevich from Smolensk, with myself as editor. We have decided to call our newspaper *Boyevye Krylya* (Fighting Wings), in keeping with the spirit of our aviation.

27 July

It is dusty and windy. The sky is booming with anti-aircraft fire. Buyevich brought a note from Vyazma: "Greetings, Vassily. I have read your poem in *Krasnoarmeiskaya Pravda* (Red Army Pravda). Well done. I

am working as a commissar in a battalion. Look forward to seeing you. Yours, Peslak."

9 August

A quiet, starry night. We lay by the tents, gazing pensively at the deep blue sky. I recalled scenes of the Russian countryside, places I have known since childhood and love dearly, where everything—each hummock and bush—was mine, too, so sweet, enticing, and precious. It was there that I lived, ran about as a boy, grew up and went to school, gaining in health and strength together with the flowers rising to the sun and the slender Russian birch tree. Now it is all being trampled by the vile feet of the bloodthirsty sadists, everything is being burned and destroyed to the foundations....

No one shall crush the state that is bound firmly by the iron letters—USSR. For it is no accident that one of the finest representatives of the German people, Friedrich Engels, once remarked that it is easier to kill Russians than make them flee from the battlefield.

11 August

Forest. Aspen leaves gleam on the moonlit path. There is a pleasant scent of pine and birch. A bomber appears in the starry sky. "Ours," says the lieutenant. And as if to confirm this, the four-engine aircraft begins to signal with green flares to the anti-aircraft gunners. Along the path runs the wire of the field telephone. We are stopped from time to time by sentries. There is an aerodrome near here. Skirting a pine forest, we drive up to a field of rye, cross it, and come to a fir grove—the front-line commandant's headquarters. After a short rest and breakfast we get down to work. Lieutenant Silayev, a Muscovite, has been appointed commandant of the front-line headquarters, senior lieutenant Ogurtsov from Yekimovichi district of Smolensk region is aerodrome commander and I am operations officer. Spent the day organising the supply of compressed air bottles for the aircraft of the new aerodrome.

12 August

An air battle began at dawn. Four Heinkels attacked a high-speed bomber. Appearing unexpectedly out of the clouds, they began to rattle away feverishly at the peaceful SB. The twin-engine Soviet plane flew over us, enveloped in sheets of flame.

We rushed out to the clearing, and a vivid, tragic picture met our eyes: the burning plane was plunging to the ground, with specks of black flying from it. There were shots, followed by an explosion, bloody yellow flames and a column of black smoke. One speck crashed to the ground, the other unfolded: it was a man hanging from a parachute. A Nazi plane dived and sent two machine-gun bursts into the parachutist. He fell lifelessly, legs bent, arms helpless, his eyes a deathly white. A bright streak of blood spread over his temple, the parachute was spattered with red. The pilot's back was riddled with bullets. The radio-operator gunner died in the fire. All we found of him was a charred arm. The navigator had not been able to open his parachute.

An old man from the collective farm came up to us and said in a quavering voice: "Comrades, a man has fallen there, in the rye. It looks like our officer...." Thus, on this ripe August morning at the edge of the

forest, near the village of Uranino in Dorogobuzh district, three Soviet men, fighters in the Great Patriotic War against the filthy Nazi scum, lost their lives.

15 August

Everything is bathed in sunlight, the tall rye gleams golden, the stream ripples sweetly ... and from a distance comes the sound of shells. The planes land, one after another. A Heinkel streaks across the sky like lightning, whining and leaving behind it a trail of black smoke. It zooms on to a Yak which has already landed, spraying it with machine-gun fire. Senior Lieutenant Ivanov did not have time to take off his parachute. He was wounded by shell fragments. The aircraft technician was also wounded. Our fighters took off, and the black bird of prey disappeared at once.

The wounded were brought to the commandant's camp. The nurses were very tense. These were their first casualties and they wanted to do their very best.

22 August

From Spas-Demensk district to Voskhody, then Sluzna, Shilovka, Glotovka.... Forests, marshes, ravines. It was here forty years ago that the talented Russian poet Mikhail Isakovsky, whose delightful verse and songs are known all over our Soviet land, was born.

The first three-ton lorry was carrying the Yak wing, the second the engine and fuselage with the tail unit. In Vskhody we were surrounded by a crowd of people who asked us to tell them what was happening. It is the same in every village. At night we arrived at Vyazma, which has the order and discipline of a front-line town. Everywhere are the jagged lines of bombed buildings.

28 August

Another air incident! Some bombers under fighter cover attacked our ground units, but their path was blocked by our Red Stars. The guns roared, and an enemy Junkers crashed to the ground, followed by a Messerschmitt. The rest flew off into the clouds. They were pounced upon there by our planes. The vermin shall not hide in the clouds above our Soviet land!

29 August

Newspapers arrived. We hungrily devoured *Pravda, Izvestia, Komsomolskaya Pravda* and *Krasnaya Zvezda.* Good articles by Alexei Tolstoy, Ilya Ehrenburg is splendid.

1 September

It is difficult travelling without lights at night. Ivan Zhirov drove the three-ton lorry carefully along the right-hand side of the highway. In the dark sky, the Nazi bombers droned on their way to Moscow. The anti-aircraft gunners give them a taste of fire and metal. We spent the night in the village of Sataraya. An old woman made us welcome in the last house. After some strong tea, we lay down to sleep. On the wall covered with newspapers, I read "The Iron Strength of Friendship", my article in *Bolshevistskaya Molodezh* about Mayakovsky's war poems.

10 September

Yelnya district is ablaze. Mingled with metal and blood, it gladly

receives the maimed bodies of the Nazi killers. Our troops are pressing the scum hard, crushing them with tanks and tearing them to pieces with shells. Soon, soon, their end will come on this bridgehead of fire and iron.

The gates will be closed to the Nazis.

11 September

The forest is quiet. Leaves are falling, and there is an autumn chill in the air. It seems deserted. But underground there is great activity: telephones ring, orders are given and political discussions are held. By the alert aircraft the pilots, technicians and air fitters are reading the army newspaper *Za Rodinu* (For the Motherland) and the front-line *Krasnoarmeiskaya Pravda* and *Pravda*, *Izvestia*, and *Komsomolskaya Pravda* which arrived a few days ago. One of the pilots reads a poem out loud and I hear the familiar lines of "O, be thou glorified, my motherland..." which is read again at the request of those present. Nobody knows that here, under this thick fir tree, stands the excited author.

29 September

We drove along the Semlev highway as far as Vyazma. It was getting dark, and we had to stop for the night.

We went to the regional party committee. At about ten o'clock in the evening, we had a meeting in the editorial offices of *Rabochi Put*. I was joyfully greeted by a former pupil from Secondary School No. 3, a third-year student of the Language and Literature Department of the Smolensk Teacher Training Institute, Vera Kislovskaya. I was glad to see my former charge. She brought me sad tidings. Many Smolensk students had lost their lives at the hands of the Nazi butchers. We paid silent tribute to their memory and made a mental vow to take bitter vengeance on the enemy.

5 October

Today Heinkels and Dorniers flew over the roads, menacing earth and sky, destroying houses, people, and animals. They approached in formation, fifteen of them, and zoomed down one after the other, then came a second echelon, larger than the first, and everything was repeated over again.... And so it went on. Along highways and byways, through field and forest, on foot or by transport, came wave upon wave of inhabitants from the surrounding villages. The dead and wounded fell by the wayside. Women and children fled desperately from the bombs.... There were groans, shouts and tears. Speeding cars and cavalry, rumbling tanks and tractors went by. The artillerymen dragged guns, shells and captured equipment. An ashen cloud of dust hung over the road. The people and the army are in retreat. And the air above them is patrolled by Heinkels and Messerschmitts that spray the trembling earth with steel bullets. By the roadside lay three childen, two boys and a girl. Bright streaks of blood had stained the grey dust and clumps of wayside grass. One boy, of about seven, lay face upwards, his arms outstretched, his mouth was half-open, as if he wanted to say something simple, gentle and wise. The little girl had buried her face in the dust, her legs were pulled up, and her arms outstretched. A red stream of warm blood trickled down her neck onto the ground. An

enemy bullet had shot her in the forehead.

It was evening on the Yelnya highway. A bomb exploded in the forest on the right. The mighty firs crashed to the ground, the sound echoing through the forest. Then came the rattle of machine-gun fire. Damn them! How painful it is to retreat. But the time will come when we shall change this verb for the word "advance", and then let the foe beware. We shall remember everything: our lost towns, the children's blood, and glow of new fires...

We travelled all through the night. It is getting cold. We set up long-range guns by the village of Maksimenka. The sky behind us was afire....

6 October

Vyazma.... Ruins, ashes, craters. German bombers flew over the elevator. There was a thunderous roar and huge columns of flying earth. The Moscow-Minsk highway was under fire. A bomb exploded in front of our lorry. Fragments of the lorry and pieces of human flesh lay by the roadside. No one groaned or shouted—horror had struck them dumb.

We set off on reconnaissance with the driver Nesterov. Anosovo-Gasheno-Vyrobovo-Bolshiye Lomy. The Germans were bombing. An Il-2 emerged from the clouds and sent a Nazi bomber crashing to the ground with its first burst. Soon the whole column was advancing towards Tsarevo Zaimishche. There it was, the old Russian village where at a critical moment for our country, 129 years ago, Field Marshal Kutuzov addressed the regiments. It was from here that the 67-year-old Field Marshal led his army to Gzhatsk. He knew the enemy well and, after dealing it a fierce blow, would always withdraw his army in order to preserve it.

Who knows, perhaps today we are repeating Kutuzov's manoeuvres in order later to defeat the enemy further back, by Moscow.

14 October

A glorious, bright, golden day in this hard, wartime autumn. We were on our way to Moscow. The drivers were excited. Many of them had never been to the capital before. Now they will be driving vehicles from the front through the great town. Moscow was on everyone's lips. Reminiscences, stories, advice.... The column was spread out over several kilometres along the highway. Towards us came rumbling tanks, tractors pulling cannons, and lorries with ammunition. On the left and right of the highway the barrels of long-range guns and anti-tank artillery pointed in the direction of the front.

Moscow has seen and endured a great deal. Wars, hunger, fire and plague have seized her by the throat and laid her low. But she has always emerged victorious, risen up again and healed her wounds.

The Young Communists were going to the front... We joined in their song—our song, and proceeded slowly towards the capital.

18 October

It was raining and the I-16s were flying low. The school at the station had been destroyed. An enemy bomb landed right on it. Books were scattered about on the floor and in the dirt of the street. Volumes

of Pushkin, Lermontov and Byron. And Lev Tolstoy's *War and Peace* was hanging on a smashed window-frame. Gogol, Dostoyevsky, Mayakovsky.... On the table lay an open brochure by Maxim Gorky. "If the enemy will not surrender, it must be destroyed!"

27 October

Our hands and feet were freezing with the cold. We had passed through Bronnitzy, Kolomna, Shuravo-Lukhovitsy and stopped at Dyashlevo. We twisted bundles of straw for bonfires. From there we could see Ryazan, the first Central Russian town to bear the blows of the Mongols in the 13th century. At that time its people told the enemy: "Only when there is not a living soul among us, will everything be yours!" Today the Nazi aggressors were speeding towards Ryazan in order to attack Moscow from the rear. And the people of Ryazan, true to their heroic ancestors' vow, were performing their military duty to their country: the enemy shall not pass!

But it was creeping up, attacking the town from the air. The ground thundered, shook and erupted. Columns of thick black smoke rose up to the clouds. The enemy aircraft flew off, pursued by Mig-1.

In two hours' time the bombers were to land at our aerodrome. We worked quickly. Above us a U-plane did a turn and landed right by the road. Out climbed a captain and a colonel, the commander of the 38th Mixed Air Division. The orders were to get to work at once.

Splendid!

1 November

The bombers are flying from dawn till dusk. The pilots and technicians have been at the aerodrome for twenty-four hours now. They eat their meals by the planes, round the bonfire in a birch grove, giving no thought to comfort. They have been given an important mission: to destroy the enemy's communications in the Kaluga area, and are doing their utmost to carry it out with distinction.

The air base maintenance battalion is working at top speed. The more coordinated we are, the worse for the enemy.

16 November

After lunch I received six postcards from Sofia, all at once. How happy I was! On one of them I saw the imprint of my dear, little Galina's hand. How eagerly and lovingly you must have pressed your little hand to the yellow envelope which was to travel several thousands of kilometres to the front! So I have found my family. One wound the less. But what of my mother, sisters and relatives?

2 December

I was billeted with a collective-farm family. Nikolai Yershov, who works at the Kolomna railway depot and was captured by the Germans during the First World War, talked about the detested "Aryans". Yet the Germans of that time were humbler and more humane than the Nazi swine of today.

His wife Olga enjoyed listening to his stories. Her daughter Olga and son Sergei sat up late reading the newspapers. Their mother wanted to know about everything that was happening at the front. She drank in every word and tears often ran down her face. She could not restrain

her bitterness at the terrible suffering that was being inflicted on Soviet people by the enemy. "I would strangle them all with my bare hands, they are so foul, so vile," she said to me.

4 December

It is midnight. The moon shines over the village on this frosty night. Inside the house it is warm and cosy. Everyone is asleep. I sit alone by the oil-lamp, except for the large grey tomcat purring on my lap.

At such a time a person's thoughts turn to the past.

It is winter now. The surrounding forests are covered with a snowy blanket. Nothing disturbs the nocturnal silence. But when a sentry walks past the window, the sound of the crunching snow resembles the distant crack of rifles and grows into the heavy booming of guns. The mind's eye sees rumbling tanks, long-range guns, the droning sky above Yelnya, and people, Russian people, coming into the fields out of the smoke, fire and iron....

There he stands, a tall, thin, simply dressed pilot. He is twenty-two. And he has been fighting the Germans since the first hour of the war, flying nearly every day in his fighter plane. "I'm from Vyazniki in Ivanovo region," he says, with the local accent. Ivanovo men know how to fight.

Yes, he is a worthy son of his native land. Proletarian honour burns bright in him. It is invincible, stronger than death itself.

His comrades called him Ivan, and the regimental commander and battalion commissar Zhitny greeted him like a hero. "How are things, my hero?" he asked him every day. And Ivan replied: "Looking up, commissar. I've just shot down another crusader." But when the day was not a successful one, the pilot tried to avoid the commissar, and if they happened to meet he would call out in passing, without waiting for the usual question: "Things aren't so good today, didn't catch any of the bastards". "Never mind, Zudilov, you will tomorrow. Don't be down-hearted, lad," said the commissar, encouragingly. "I'll try tomorrow, alright. But I slipped up today. So help me."

The grandfather clock ticks on. It is three o'clock. And the moon shines over the village on this frosty night.

8 December

At the collective farm office in the village of Dorishche I gave a talk entitled "The Russian People's Two Patriotic Wars Against Foreign Aggressors (the Napoleonic invasion of Russia in 1812 and the invasion of the USSR by the German armies in 1941)". The farm workers showed great interest in the lecture. They immediately supported sending supplies to the front ahead of schedule and asked me to repeat the lecture in the village of Novaya.

15 December

The whole world has heard the news of our victories in the North and South and outside Moscow. Blow by blow the Soviet generals are beating back Hitler's armies. In Berlin they are whining: "It's because of the winter. The terrible cold.... It has nothing to do with the Red Army, and anyway we are just levelling out the line of the front and withdrawing to winter quarters...."

But what can one expect from Nazi murderers and aggressors?

We have received orders to redeploy. We are loading the fuel, ammunition, flying equipment, food and clothing and will soon be on our way.

31 December

Kamenka. Forty kilometres from Podolsk the buildings are destroyed and burnt, the bridges blown up, and the wires cut. The Germans were here two days ago. There is fighting in Spas-Zagorye, where our aerodrome is. It is still cut off. The army commander has promised to drive the Nazis out of the village this evening. We returned to Podolsk. The inhabitants greeted us like long-lost relatives. The technical unit is at house No. 50/18 with the Sinegubovs, Konstantin and Maria, wonderful people.

At the table we listened to Kalinin's radio address and drank a toast to the New Year, a year of victories.

It was warm and cosy. It has been a long time since we saw electricity and listened to the radio in a family atmosphere. We sat up late.

The dear old couple showed a parental concern for each of us. The wife gave me a new notebook in a violet cover. I think my mother is probably no longer alive.... I received the notebook from the hands of a woman who took her place for a short while. It was a token of maternal affection, and I shall write in it everything that the new heroic year of bitter fighting against fascism dictates to me.

1 January, 1942

The first day of the new year of tense combat for the motherland. Tanks rumbled along the old Warsaw Highway, and lorries sent up clouds of snow.

The Podolsk countryside looked delightful. Birch groves, deep ravines, forest glades, and overhead the high, bright-blue January sky. But then came Kamenka, and the picture changed. Gaping holes in the road, blown-up bridges, and trees like corpses with outstretched arms. Along the highway stood mutilated stumps, the remains of telegraph poles, and the wires lay in the snow. And the villages? Ruins and charred remains....

Okatovo, Belousovo, Dobroye.... Burnt houses, ruined barns, charred pipes and pieces of broken crockery. Along the road were frozen corpses and a row of white crosses—the Nazi aggressors had found *Lebensraum* on Russian soil.

The fighting had left its mark everywhere: on the churned up, blackened snow mingled with blocks of frozen earth that had been thrown up by explosions, on the burnt, mutilated houses, the crippled trees....

19 January

Busy days. The aerodrome is packed with planes, PE-2s, I-16s, Mig-3s, U-2s. Four regiments. More will be arriving shortly.

January 22

The airfield is buzzing with activity. The pilots make five raids daily behind the enemy lines. We've settled down here in real businesslike

fashion: opened a bath-house and barber's shop, provided good quarters for the men in all regiments and battalions. In the evening, I gave a talk on "Two Patriotic Wars of the Russian People Against Foreign Invaders".

6 February

Exercises. In the cockpit of a PE-2 Dubinin gave a detailed talk on the equipment of the bomber cockpit. Flight preparation has started.

Vassily Konenko, now Hero of the Soviet Union, Candidate of Technical Sciences and a senior lecturer, but at that time a navigator in one of the crews of the 46th high-speed bomber regiment, knew Gorbatenkov well. He wrote to me: "I first met him at the aerodrome in Spas-Zagorye in January 1942. He was working in the technical department of the air base maintenance battalion and very soon became friendly with our crew. He often chatted with us, showed great interest in the details of combat flights, and deeply regretted that he could not destroy Nazis personally with a weapon in his hands....

"It was then that he first thought of studying navigation so as to be able to fly as the navigator of a crew. We encouraged him...."

One of the first people to support Gorbatenkov and help him become firmly convinced of the correctness of his decision was Grigory Dubinin, then commissar of the regiment's 2nd air squadron. It was with him that Gorbatenkov went up on his first flight.

Battalion headquarters were a hive of activity as ever. The regiment's engineers had their hands full. There was one combat mission after another. Gorbatenkov hurried to the depot. On the threshold stood Commissar Dubinin, flushed, impatient and slightly agitated.

"Been looking for you all over the place. Now I've got you at last. You're going up," he said to Gorbatenkov.

"When?" Vassily asked, sceptically.

"Straightaway. We must be in the air in half an hour. We'll change at the hostel."

"What's the mission?"

"Reconnaissance."

Gorbatenkov felt a surge of excitement. Without showing it, he gave the necessary instructions to his

assistant and the storemen.

Gorbatenkov sped to the hostel where his comrades handed him a helmet, flying suit, and so on. Quickly and efficiently they adjusted his uniform, gave him a few words of advice, and then saw him off joyfully on his first flight.

Before take-off engineer Iskornev checked his technical knowledge and the armament technician tested him carefully on the plane's guns. Pilots, navigators and fitters were standing by the PE-2 on the airfield. The engines roared. Dubinin put his hands on the wheel and asked them to switch on the intercom.

It was Gorbatenkov's first flight. There were to be many more for him, but the first one is what you remember best.

They flew at a low altitude along the highway towards Maloyaroslavets.

"Swivel the machine gun, navigator," Dubinin ordered on the intercom. "Check that it is ready for action."

Gorbatenkov repeated the order and set about carrying it out.

"There's Ilyinskoye ahead, see? There was some fierce fighting here."

"I see it well. I remember Ilyinskoye."

They were flying at three thousand metres. Gorbatenkov looked down, entranced. There was a slight pricking in his ears, and he shook his head. It was a fine weather and visibility was excellent.

"That's Medyn in front of us. See?"

"Yes, I see," Gorbatenkov said, absently.

"Yukhnov's on the left."

Dubinin flew the plane confidently, giving the necessary instructions.

"Kolupayev," he addressed the gunner. "Radio to ground: 'Flying over the front, everything in order'."

The radio operator repeated the order and after a short while reported:

"Message transmitted."

"Temperature, Gorbatenkov.... Gorbatenkov, watch the air carefully on both sides, particularly facing the sun.

I will look ahead. Gorbatenkov, get ready to signal with the flares."

Gorbatenkov quickly prepared two red flares.

"Send it up."

Gorbatenkov was tense, but did everything correctly.

"We are skirting the town."

"We'll be coming up to Kamenka soon, won't we?" asked Gorbatenkov, afraid of making a mistake and causing the commander to lose faith in him.

"You'll see in a minute."

The plane was flying low over forest.

"Recognise it?"

"That's Kamenka."

"Right."

"That's Belousovo. The road to the Ugodsky Factory."

"Right."

They climbed over Dobroye, over the water-meadow of the Protva, then began to descend swiftly. With a deafening roar they crossed the village. There was the aerodrome. They made a turn.

It was a smooth three-point landing. There were the usual slight jolts and then they taxied along. They had been in the air for 2 hours 57 minutes. Gorbatenkov was exhausted, but happy.

3 April

Dawn. The starlings are twittering their simple chorus in the lower reaches. Patches of thawed earth show black in the grey valley on the other side of the Protva. Over the spring earth fly noisy aeroplanes: chattering, shouting, howling and whining. They are speeding westwards.

4 April

The newspapers are reporting the Nazi atrocities in the Smolensk region. Political instructor Grigory Gordeyev, a native of those parts, brought a recent issue of *Rabochi Put* from Maloyaroslavets. This breath of home conjured up images of familiar places, the picturesque countryside around the ancient town.

Oh, native land. Yes, for the right
To toil and live in joy I'll fight.
To you my burning cheek I'll press
And drown your groaning with my breath.

These lines are from Gorbatenkov's poem "Native Land", which was written in his diary. He often wrote poems in his diaries, and from them one can see how versatile a poet he was.

His diary contains many reflective poems, many poems dealing with topical subjects and many poems that were a call to action. He dedicated them to distinguished pilots, dead comrades and brilliant air victories. He probably did not manage to copy down in his diary all the poems that he wrote at the front. Veterans from his regiment have sent in many which the poet dedicated to them personally.

A direct participant in the fighting, who had suffered all the tribulations of aerodrome life behind the lines, he knew Soviet pilots well and wrote about his comrades whenever he could find the time. We do not know exactly what Vassily Gorbatenkov intended to write for he does not say anything in his diary about his literary plans, but it seems likely that in composing poetic portraits of his comrades in battle he was writing a novel in verse.

The pilots, navigators, technicians and fitters all loved listening to Vassily Gorbatenkov on their rare free evenings. He would lean against a tree and recite quietly:

Oh, there are those whom trouble does not age.
The light of spring shines ever in their eyes.
Our regiment had one such comrade brave
Of whom they said: he was born with a smile.

Sometimes our Party Secretary remarked:
'You're a good lad, but you like to lark.'
Yet he would laugh and answer with a jest:
'The man who smiles is he who fights the best.'

And fight he did most skilfully and well,
With bayonet, and hand grenade and gun.
He killed the cursed Nazis without fail
And sang: 'Rest without the saints, scum.'

5 May

Press Day. A festive issue of the battalion wall newspaper *Fighting Wings* came out. Rank-and-file contributors to the army press were feted.

At 16.00 a fascist reconnaissance plane appeared. There was firing from the ground.

6 May

We flew over Borovsk. It is beautiful from the sky, this favourite holiday spot of Muscovites. There are some dark pages in its history. In 1671 two Russian women, the Morozov sisters, were put in a pit and starved to death on the orders of the tsar. In 1812 the town was destroyed by Napoleon's army. And in 1941 it was bespattered with the blood of Soviet people murdered by Hitler's hordes....

Balabanovo. Summer cottages burnt to the ground. Spas-Zagorye. The plane touched the ground, the flight was over....

7 May

Ehrenburg, Tikhonov, Lidin, Stavsky, Surkov.... How grateful we are to them for their wrathful words that smite the enemy. The Nazis fear the printed word and burn the books of Russian writers. But the truth cannot be burnt. The artillery booms, the bullets fly, and the men eagerly devour *Krasnaya Zvezda.*

18 May

Rain and mist. A depressing interlude. But enough of these gloomy thoughts. Perhaps the post will bring some letters from my wife, and on a sheet of paper full of love and sorrow, I shall find the imprint of a small child's hand.

21 May

The Junkers are bombing Maloyaroslavets. On the outskirts of the town there are huge craters and fragments of human bodies.

The women have grim, tear-stained faces, and hatred flickers in the children's eyes.

A Messerschmitt is being taken to the army metal dump. The words "Nazi murderer" have been scrawled on the rudder with charcoal. People look contemptuously at its lifeless body and praise the Soviet pilot who shot it down.

"Look at it, black as the devil. Their lorries and motorcycles are black as well. Everything about them is black. Their hearts too...", a grey-haired old man says to some shock-headed lads who listen gravely to his words.

The Ilyushins speed westwards.

"Good luck, my hearties!" shouts the old man, gazing up and shading his eyes with his hand. The children wave their hands. Red Army troops march along the street. A long train with new troops is approaching the station.

8 June

Flew with the pilot Semyonov to Spas-Zagorye. It was windy with patches of cloud. The battalion military commissar Issak Voronov told me some good news: command had agreed to my request to be posted to the front line. A report has been sent to the personnel department of the First Air Army. The decision contains a condition: "Agree to posting provided that a suitable replacement can be found", but this should not prove difficult.

"I'm sorry, Gorbatenkov," the commissar said. "You underestimate

your role. Our work is important too. We service the planes of operational regiments. The front could not exist without that. And you have done a great deal. That is why we are recommending you a second time for a government award...."

I again tried to explain to the commissar that I needed to be where the fighting was, because I felt it my duty to kill the scum, but that the nature of my present work compelled me to take part in their destruction indirectly, at a distance. But I was glad that the vicious circle had been broken, and that I would get to the front somehow or other. At that moment I wanted to write to Sofia to share my joy with her and explain that I was consciously risking my life for the sake of millions of Soviet people. She understands everything, she would not blame or criticise me. She would be sad and weep a little, but would write as before: "Be bold and brave, destroy the vermin."

Then came another pleasant surprise. The dive-bomber pilots were at Spas-Zagorye.

Regimental commander Zhigarkov, military commissar Dubinin, and engineer Iskornev, of the 46th. I hurried to see Dubinin.

On the threshold I saw the smiling engineer.

"Where's Dubinin?"

"Here he is..." and the military commissar came towards me with outstretched arms. He was sun-tanned and laughing, but had a streak of grey in his hair.

I congratulated him on receiving a second decoration. We had a friendly chat and parted, after arranging to meet in two days time when Dubinin is to fly to Grachevka in a U-2. We will have a proper talk then.

13 June

I assembled the personnel and gave a talk about the situation on the fronts of the Patriotic War. They hung on every word and kept their eyes glued to the map. How we long to speed westwards, as fast as possible, to drive the last German off our soil. Everyone worked with a kind of heightened enthusiasm today. How fine to advance into battle with these men. They would never let you down....

15 June

I can hear the sound of our PE-2 bombers. What a pleasure it would be to fly in them and drop bombs on the scum.

Representatives of the 814th air base maintenance battalion arrived. That means I shall be going tomorrow or the day after. I can hardly wait to see Dubinin again.

18 June

Met Dubinin at 12.00. He was pleased. We had a long walk. The commissar talked about the possibility of a long-range reconnaissance regiment. After a moment's thought, he said:

"Come and join us. We'll do some good, hard work. Give lectures, organise talks, write the history of the regiment, in short, educate them. We've got some fine lads. Heroes. What do you think about it?"

I replied that I had submitted my third and probably last request to be transferred to the army in the field, to the front line. Even if I was just an infantryman, a private, I would be where the fighting was, on

Smolensk soil, to defend my people and my native town.

"Splendid," he embraced me. We walked slowly as people do on an evening stroll. "Splendid. You can be our navigator. You passed the exam in the 46th. It's just a question of getting permission."

After listening to my views on the subject, he finished:

"We'll work together. Be sure of it."

We said goodbye and each went on his way, pleased and excited.

I thought of him all evening and of more that I wanted to say to him. Before me I saw his tall, slim figure, unassuming, pensive and friendly. On his breast shone two combat decorations, yet he seemed to be somewhat embarrassed by his well-earned fame.

The Protva is gleaming in the hot sun, the swallows fly over the water, and fighter planes sing in the air.

Palmov handed me this note: "Comrade Gorbatenkov. If possible come to see me at 16.00 today. G. K. Dubinin."

The invitation arrived a day too late. It was left in a book that someone put aside. Apparently Dubinin wanted to introduce me to Regimental Commander Major Zhigarkov. It looks as though there will be a talk about my transfer to the regiment.

20 June

On the way to the depot I was met by a messenger who told me to report to the headquarters of the reconnaissance regiment.

There I was told to go to the major's quarters.

I arrived. A meeting was taking place on personnel recruitment for the 10th long-range reconnaissance regiment. Dubinin introduced me to the head of the personnel department of the Western Front. Then followed some brief questions and equally brief answers. There were a number of vacancies, but I wanted to fly.

"Aren't you afraid of flying?" asked a lieutenant-colonel.

"Nothing frightens him," Dubinin replied.

"We are thinking of taking you into our regiment," said Major Zhigarkov, giving me a searching look.

"Our work is operational, very interesting," added Chief of Staff Major Bartosh, whom I recognised as someone I had known many years ago in Bryansk.

In our brief talk it emerged that he had been a physical training instructor in the Bryansk air brigade in 1933. His work was in the public eye, and we, students, deeply respected this talented man, an athlete who fired all around him with his enthusiasm.

"You will be a pilot," concluded supply officer Kovalevsky, examining the documents that lay in front of him.

I went out excited and deeply grateful to these thoughtful people....

22 June

I gave a lecture called "The Science of Hatred" and saw tense, angry faces and eyes shining with tears. These people hate fascism with all their being. They are from different republics and nationalities, yet they share a common noble aim—to destroy the foe.

Friends, comrades, brothers-in-arms!

For almost a year now I have been traversing with you the paths of

our mutilated native land. Together we dropped into roadside ditches when explosions sent the earth flying; together we huddled to the ground as German bullets hit the stones; together we carried out the wounded after air raids and dragged pilots out of burning planes, together we buried dead comrades and swore over each grave to fight the foe to the last; together we slept in the forest in the damp autumn, sheltered in straw huts and tents, not taking the boots off our wet, frozen feet for weeks on end, together we cooked "shrapnel" soup and broke out of enemy encirclements without a crust of bread in our pockets or a bullet in our belts....

They were difficult days. Days that smelt of gunpowder in the crimson sunset. There were some among us of little heart. Not all were able to withstand the grief and fear. But they were few in number.

The Germans are marching on and further on, committing atrocities. Can we sleep or work calmly while they are still on our soil? All that we have won, all that we have created and are creating will be destroyed if Hitler is victorious. We must not count the risk. We must look death straight in the eye, go out to meet the enemy, and fight to the last breath. These are not sentimental words, but the truth written in blood.

This is how I see events, this is what my mind tells me, this is how my heart bids me act, and it is in this mood that I go off to fight for the just cause. And if, my friends, you should happen to read these lines, I trust you will not blame me for speaking my mind.

One has the feeling that he is addressing himself to us over the decades. I leaf carefully through the notebooks with their tattered covers and yellowing pages, peering at the neat, regular handwriting. And keep thinking what fine qualities he had, what great spirit they reveal.

Vassily Gorbatenkov regarded the affairs of his country as his own, except that they were much more important. He writes with great emotion about the battles of Yelnya and Sevastopol, Stalingrad and Kursk. He regarded the temporary retreat of our army and the Nazi atrocities as a personal tragedy, and there was no greater joy for him than our military successes. One is impressed by his firm faith in victory, which he expresses in the early, most difficult days of the war. "He was one of the noblest, finest and fairest people I have ever met. He was a communist in the very broadest sense of the word," Vassily Kononenko said of him.

25 June

A group of German prisoners-of-war was being transported along the Warsaw Highway. Two of them were pilots. They complained about

"being rammed against the rules".

"What about killing peaceful civilians, women and children? Isn't that against the rules?"

"The Führer gives the orders...."

"He is a tyrant. And remember what the poet said: 'your tyrant will perish, as all tyrants before him'."

"The poet does not know the Führer, that is why he is wrong."

The German was obtuse and arrogant. He was not even abashed when someone told him that these words belonged to the great Russian poet Lermontov who, of course, did not know the Führer because he died exactly one hundred years before the Führer invaded our country.

The Nazi Oberlieutenant looked at me with his colourless cold eyes and barked: "Schlecht. Hitler kaput." The very sight of this Nazi swine was revolting.

10 July

The history of the technical unit is ready. This voluminous album with a mass of charts, diagrams, photographs, and passages of text tells the story of the unit in the first year of heavy fighting. Under the Red Star on the unfurled banner are four lines of verse:

The foe is cruel. Spare not your lives.
Advance, ye, heroes of the sword.
In the sacred battle for our land
The immortal Red Star lights our road.

We shall carry this star through the oppressed countries of Europe. The light of its rays will pierce the dark streets of Berlin and illumine all lands with the inextinguishable flame of a free and triumphant life.

14 July

In the morning Dubinin came in, smiling, and said:

"I've been looking for my deserter. Glad to have found him at last. You've got work to do...."

"I don't understand."

"Don't you know about the general's order?"

"What general? What order?"

"Commander of the First Air Army, Major-General Khudyakov, has signed an order for you to be posted to our regiment as an aircraft observer."

16 July

A lovely warm day. The bombers and strafing planes are flying westwards. The aerodrome is very noisy.

Received a letter from Rylenkov. Very warm and direct. The head of the personnel department, supply officer Romanov, brought an order from the headquarters of the First Air Army.

Late this evening the lieutenant-colonel said: "This is your last night with the battalion. Tomorrow you go to the regiment."

18 July

Life at the aerodrome began at dawn. The engineers and technicians tested the engines and checked the planes, and the pilots,

navigators, radio-operator gunners and heads of the special services went over the missions. A group of young navigators is studying the theory and practice of reconnaissance, the combat capacity of the PE-2, air navigation, and aerial photographic equipment.

20 July

They brought in the body of a dead pilot. Some Junkers descended on the aerodrome yesterday. He attacked them, shot down two planes, then landed in his own plane which was damaged and on fire. When they ran up to the plane, the pilot was sitting motionless. They called to him, but he did not reply. He was dead. No one knows whether he died here, on the ground, or whether it happened in the air and the plane, guided by the pilot's experienced hand, made a proper landing. The fire was put out and the fighter plane saved.

The coffin was lowered into the grave to a triple cannon salute. A memorial surrounded by iron railings was erected in the middle of the square in front of the school. Under the propeller in a frame is a portrait and the following inscription:

"Hero of the Patriotic War
"Captain
"Fyodor Mokeyevich Pustoshin
"Attacked and drove away 20 Nazi aircraft single-handed on 19 July. Shot down two of them and died a hero's death in the unequal battle.
"19. VII. 1942"

4 August

Our troops began to advance at Pogoreloye Gorodishche. In six hours dozens of Russian villages and twelve kilometres of territory leading to the west have been won back from the enemy.

All day reconnaissance aircraft flew over Rzhev and its environs, following the enemy's manoeuvres.

8 August

The enemy is manoeuvring near Volkhov. The reconnaissance aircraft have increased their vigilance. On the commander's desk lie photographs of enemy aerodromes, fortifications and positions.

9 August

Attended a Party meeting. Interesting people, capable of great things. Malykhin, Zinin, Lukyantsev, Glushko, Kononenko, Savin, Kudryavtsev, Makarov.... There are many of them, brave, strong-willed, and hard-working.

Tracing Vassily Gorbatenkov's life at the front from day to day, following in his footsteps, one cannot help being amazed at his indefatigable activity. Yes, he worked tirelessly for victory and believed that it was close at hand.

12 August

On 7 August the deputy commander-in-chief of the First Air Army, Colonel Kuldin, was killed in battle. He had flown off to the Pogoreloye Gorodishche area to pursue a fighter plane, when he met six Messerschmitts. An unequal combat ensued. The brave colonel brought

down two enemy aircraft, but was shot down himself. In his burning fighter plane he rammed a third Messerschmitt and, together with it, plunged to the ground.

16 August

More and more often one hears talk of the "Kalinin Front". But the question on everyone's lips is: what is happening in the South? The former gladdens the heart, but the latter makes it heavy....

At a Party meeting some fine comrades were admitted as candidate members. One of them was an electrician from Smolensk called Delkin, an unassuming, hard-working man. I felt a special affection for him, my fellow-townsman....

The sky is overcast, the wet, yellow leaves are falling, and autumn creeps through the forest.

26 August

Patches of cloud. In the intervals between flights we picked mushrooms. Lukyantsev is very fond of walking in the forest. He's a man of experience and an interesting conversationalist.

The forest was delightful and the air fresh and pleasant, apart from the constant drone of U-2s flying overhead.

There are mushrooms of all sorts in abundance and no one to pick them. The villagers are too busy with the harvest. Before the war the mushrooms were picked by holiday-makers from Moscow, and the collective farm workers, too, laid up enough to last all through the winter.

We were greeted at the command post by some joking remarks. We were not alone. Major Davydenko had filled his parachute bag with mushrooms. He, too, it a lover of forest walks, and has become a member of our company.

Good news! The Red Army is attacking the Nazis at Rzhev....

27 August

Rain cloud. The first flight was for weather reconnaissance. The day did not look promising. At the command post they lit bonfires, baked potatoes and played chess.

There were constant phone calls from the First Air Army to ask about flights. Unfortunately, the low clouds makes photographing impossible, and visual reconnaissance on a PE-2 would not give a complete picture.

28 August

Everyone is overjoyed at the latest announcement by the Soviet Information Bureau. Zubtsovo, Pogoreloye Gorodishche, Karmanovo, 610 inhabited localities, and an advance of 50-115 kilometres are the results of the Red Army operations on the Western front in August.

The reconnaissance units are proud that their work played a part in this operation. They did a great deal of flying over the Rzhev area, photographing the defensive lines of artillery batteries, airfields, bases, and transport, and can now congratulate themselves on the victory.

29 August

The lime leaves are turning yellow, and there is a morning freshness in the air. But the sky is clear and bright and the sun is high. The birds

sing as gaily and clearly as if it were May.

The first squadron has the day off today and the second one is flying. I gave a talk on the situation in the South, an engineer from a Moscow aircraft factory spoke on aircraft equipment, and then we went to the forest to pick up mushrooms. After dinner we went to the river. We caught some fish, swam to our heart's content, cooked some fish soup and, as the moon rose over the dewy valley, through a faint mist, returned in high spirits to Spaś-Zagorye. Pilots Lukyantsev and Lapshin, navigator Kononenko, and radio-operator gunners Makarov and Scherbakov make fine company. They know how to work and how to play.

9 September

When things were difficult, we said to ourselves: "Look at Dubinin". When we were overcome by grief, we said "Think of Dubinin". When we were assailed by doubt, we asked "Is Dubinin like that?" When we spoke of courage the fine figure of Dubinin arose before our eyes, and when we needed an example of human steadfastness, Bolshevik daring and dignity, we gazed in admiration at the Communist Dubinin.

11 September

Major Zhigarkov has grown old and haggard in the last few days. He has still not recovered from the blow. He sits at his desk, looking at a photograph of his friend, with tears in his eyes.

Pavel Bartosh is holding out. He works almost day and night, keeping a close eye on the complex running of the regiment and working together with the commander on the design for a memorial to the military commissar and his comrades.

Alexander Savin, an engineer in the regiment's first squadron who became a parachute tester after the war, recalled that a poem written by Gorbatenkov was carved on the gravestone of Dubinin and the whole team.

Oh, linger, passer-by, and tribute pay
To their sweet memory with words inspired.
T'was for the twentieth century they fought,
A century made bright by crimson fire.

"He put a great deal of work into composing obituaries and writing letters to relatives of the deceased. The letter to Dubinin's wife after his death was written by Gorbatenkov. He also composed numerous inscriptions for memorials. He put his whole heart into these works, which is why they radiated such human warmth. He loved people dearly and gave them all he could," Kononenko wrote to me. He, in his turn, loved Vassily, flew with him, taught him navigation and valued him as a friend.

23 December

The post has been a long time with Sofia's postcards. At last the postman brought five at once. Nice, cheerful ones. "I want to be with you. If it weren't for the children, I would be fighting by your side."

Fidelity is a fine word. There is none stronger in peace-time and war. If a wife can work and wait at home, it is easier for her husband to fight the enemy at the front. True to this law, I address myself

TO YOU, MY BELOVED.

At Yelnya how the guns did roar.
We could not sleep for days on end.
But, oh, before me then I saw
Your eyes, like little lights, dear friend.

The bullets whistled and they whined.
Machine-guns rattled very near.
And I thought of the helpless child,
The child born in this bloody year.

Yes, of my daughter at this hour,
Whose life to me is very dear.
And I did all within my power
To crush the foe both far and near.

I thought of all our people's woe,
Our land set fire to by the foe.
And felt all through this noble fight
You, like a warrior, by my side....

11 January

Went off to the First Air Army at dawn.

Lieutenant-Colonel Androsov, deputy executive officer of the political unit, suggested that I should go and work there.

He argued long and convincingly that I should change my profession, take up some challenging, new work, and devote my energy and knowledge to a great cause. I was grateful to him with all my heart for his interest, solicitude and understanding. He reminded me during this talk of Dmitri Furmanov—the same intelligence, simplicity and courtesy. But I could not consent to leave the battlefield, to stop coming to grips directly with the enemy.

26 January

A sunny, frosty day. Not a cloud in the sky. The aerodrome is a hive of activity with PE-2s, ILs, UTI-4s, U-2s and Chaikas taking off and landing constantly.

The regiment made 18 reconnaissance missions of enemy aerodromes, roads, defense lines, and communications.

27 January

The Soviet Information Bureau delighted us with the news that the enemy stand at Stalingrad is about to collapse entirely. Another two or three days of bitter fighting and the German force of many thousands

that is entrenched in the ruins of the devastated town will be totally destroyed.

On the last day of January Gorbatenkov was summoned by the head of the personnel department. The tall corpulent colonel greeted him in a curt, aloof manner, gave him a blank, indifferent look, and pointed to a chair.

The conversation was short and official, rather like an interrogation.

"Surname?"

"Gorbatenkov."

"Rank?"

"Lieutenant of technical services."

"What do you do?"

"I fly."

"Then why are you a lieutenant of technical services?"

"I graduated from an aviation technical school."

"Then how is it that you are flying?"

"I re-trained."

"Why didn't you change your rank?"

"That does not depend on me. Actually our command has been expecting the orders for some time from the First Air Army."

"How many combat missions?"

"Fifteen."

"Decorations?"

"None."

"Why?"

"That does not depend on me either. I suppose I have not earned any."

"That's strange. The People's Commissariat has ordered that a decoration be awarded for ten combat missions. Education?"

"Higher."

"Where did you study?"

"The Language and Literature Department of the Smolensk Teacher Training Institute."

"Still remember any literature?"

"A little."

Another few questions in this official manner, and the

colonel stood up. The conversation was over.

While he was standing by the door of the same office, waiting to be called in for another talk, Gorbatenkov thought back over the conversation in a effort to guess what the colonel wanted.

He waited for a long time, walking up and down the long, empty corridor, tired and disappointed. An elderly major came up and delivered a packet marked "Colonel Fastavshchuk". "In all probability my fate is sealed in that packet," Gorbatenkov thought. He had begged in vain not to be taken away from flying. Pulling his sheepskin coat around him, he sat off reluctantly for the wing of the head of the reconnaissance department of the First Air Army.

To whom could he open his heavy heart? One of the corridors took Gorbatenkov to Lieutenant-Colonel Androsov, a man who knew how to listen, understand and, if necessary, help.

Androsov gave him a warm welcome as usual. After Gorbatenkov had explained the situation, Androsov asked him a lot of questions and then, learning about his trouble, immediately took him to the deputy commander-in-chief, Colonel Litvinenko.

The tall, thin Litvinenko rested his head on his hand and listened in silence. Androsov kept interrupting Gorbatenkov's account to give a vivid description of his client's services.

"It's complicated work, flying," said Litvinenko, in a hollow voice. "But if you really want to, I will support you."

31 January

I don't want rank or status. I should be happy to be a simple private. My place is in combat. That is my reward.

That is what I think, and I would like to be properly understood. I do not know whether I managed to express my ideas clearly and concisely in the talk with the colonel, but the fresh possibility of being able to fly gave me heart again, I felt a new upsurge of strength and was profoundly grateful to the experienced commander, a man of real feeling and Bolshevik action. Even the return journey seemed shorter, and my fatigue vanished at the thought of the forthcoming sortie behind enemy lines.

2 February

The Red Army victories in the South are very cheering. But the weather is revolting: the wind is whipping up blizzards, driving the blinding snow, and reducing visibility to half-a-kilometre. No flying in that.

I recalled Boris Pasternak.

"'Tis February.... Take up the ink and weep...."

5 February

The radio has again announced some joyful news. Cheered by the victories of our troops in the South, we made a reconnaissance sortie of enemy communications in the Bryansk sector of the front. Vehicles, cars and motor columns are driving along the roads to Zhizdra, Lyudinovo and Star. The enemy camp is on the move.

Suddenly the plane started to jolt. The left engine was shaking. Behind the tail were long trails of black smoke. It looked as though oil was getting into the branch pipes and burning.... And ahead of us was Bryansk and the German anti-aircraft guns.

We radioed ground that we were discontinuing reconnaissance, headed for Zikeyevo Station, bombed some motor columns and set off for home territory on a course of 25°. What a pity the engine let us down. There have been seven recent cases of engine failure during flight in the regiment. Only the skill of the pilots saved the crews and aircraft.

In the evening we received the news that pilot Danilov had crashed with his crew and that Shcherbina had not returned to base.

I wanted to cry, but the tears would not come, to speak, but the words stuck in my throat. The night was troubled and garish, as if bespattered with blood.

12 February

The February blizzards rage....

A Junkers appeared over the aerodrome. It was greeted by anti-aircraft fire, and turned tail for Tula, after dropping a packet of leaflets.

A crowd of people, Red Army men, young boys and women, cleared last night's fall of snow from the airfield, transporting the huge lumps to the ravine, and a tractor flattened the runway with its huge rollers.

At 11.50 we taxied up to the starting line. We tried the field: the snow was still loose, and the wheels sank into it, but we decided to take off.

Misha Malikov opened up the throttle. The heavy plane moved off, snarling and rocking, and sped to greet the howling wind.

Twenty minutes later we crossed the front line. At an altitude of 4,000 metres the engines began to emit smoke. Enormous trails of black smoke stretched out behind the tail. In spite of this we surveyed all the roads in the Orel-Bryansk sector and bombed Zikeyevo station.

Two hours later we went up again. And again the engines started smoking. But we could not break off the mission. We surveyed the roads to Roslavl and headed for Bryansk to photograph the aerodrome. A Heinkel-111 took off. Ahead on the left an anti-aircraft shell burst. The

radio operator shouted: "Anti-aircraft gun behind." The pilot manoeuvred.

After escaping from the enemy fire, we replied in kind by bombing Beryozovka station....

14 February

I was asleep when Fyodor Shcherbina knocked. His face was sallow, emaciated and unshaven.

"My dear Fyodor! So you've come back!" There were kisses, embraces and congratulations on being promoted to captain, on being awarded the Order of the Red Banner, on the fact that his native village of Zassovskaya in the Kuban area had been liberated, and that he was alive and had returned to us....

The alarm clock rang like the bells of a passing troika. I raised my head. It was morning. There was not a soul about. Everyone was still asleep. I had dreamed of Fyodor Shcherbina, as we often dreamed of him after 5 February. Outside the blizzard raged....

17 February

Our troops are approaching Orel. The Germans are feverishly erecting fortifications, bringing up reserves, and replenishing their supplies of equipment. The southern sector of the Western front is becoming an active field of battle. Unfortunately the bad weather makes aerial reconnaissance impossible. We are using partisan reports.

19 February

Major Bartosh let us go up at last. We flew around in cloud for about forty minutes, taking photographs whenever possible, located ground movements of enemy troops, and transmitted a weather forecast—heavy cloud.

23 February

We worked well to celebrate the 25th anniversary of the Red Army. Our group made 14 sorties. We photographed all the aerodromes in the southern sector of the front, Bryansk, Karachev and Zhizdra, surveyed roads, located depots and tanks, checked troop movements and flew over the battlefield.

Units of the Western front assumed the offensive. The artillery is forcing the forward line of the German defence—north of Lyudinovo—Zhizdra.

My 25th combat sortie coincided with the 25th anniversary of the Red Army, and I dedicated it to this great day.

In his poems, letters and diary he constantly addresses his beloved wife and children. His longing for them, his desire to help them and be with them, were so strong that he wrote home every day.

"Sofia, my dearest Sofi," he wrote to his wife, "whatever may happen to me, you, the mother of my children and part of my heart, must educate and bring up our daughters, pass on to them everything: love of our

country, and infinite fondness for you (there are still some tender things I have not told you yet, my dearest), unavenged hatred of the foe, and devotion to our Smolensk land. You will be helped by our Party, our country, and our fine people. Do not be sad. Promise not to cry. It is hard for everyone. And for you too."

His wife brought up her daughters in memory of him and his work. Galina graduated from an institute and became a Candidate of Chemical Sciences. Nina graduated from a medical institute and also defended a candidate's thesis.

1 March

Frost, mist and cloud.

The operations in the South have slowed down. The spring thaw has begun, and the weary units are being re-formed. The Germans are resisting strongly and bringing up reserves.

The Donbass suffers, the Kuban calls, and the Ukraine waits.

The road to the West is a long one. The old frontiers are still far away. But the Germans must be expelled. They resist hard, they do not retreat without a fight....

The last entry in the diary is dated 3 March, 1943. The next day the plane in which Vassily Gorbatenkov was flying was shot down near Smolensk close to the village where he was born. The earth received the son who had sung of its beauty and given it his life....

Vassily Gorbatenkov died more than thirty years ago. He was thirty-two. But his life contained a great deal: worker, teacher, poet, soldier, and Communist, he was a true son of his country and his age.

To Greet the Wind

A green flare announced that flying was about to begin. The commander hurried to runway control, the pilots and technicians to the aircraft.

The special trucks darted quickly from plane to plane.

A group flight is a serious matter. The technicians climbed up the bright-red ladders resting against the silver bodies of the planes. They busied themselves in the cockpits and sent signals to the flight services.

A technician cannot release his charge, the plane, until he is sure that all systems are working faultlessly. By showing this concern, he is safeguarding the life of the pilot.

The plane finally moves off at low speed and taxies to the runway.

From runway control there is a good view of the airfield and all the buildings; they blend in well with the surrounding countryside, forming pleasant landscape. But soon the rushing air begins to distort the clear outlines of objects, and a thunderous roar is heard. Then the sound of the turbine dies down, the jumbled pictures sort themselves out again, come into focus, and a magnificent panorama again gladdens the eye. What space, what delight all around!

I was at runway control, watching the flights. A fighter plane bristling with missiles and auxiliary tanks, like an enormous hedgehog, appeared on the runway. It cocked its nose and soared up swiftly into the sky. The sound of the turbine was still echoing on the ground, leaping and rolling over the concrete, when the plane had vanished into the blue.

The flight control officer, Lieutenant-Colonel Laptev, an impressive man with a high forehead, gave a slight, crooked smile. It was the smile of a man who is happy with his work and his subordinates. He was thinking about something. His blue eyes were fixed on the runway and the right-hand section of the airfield, from which the planes were appearing as if from nowhere. Then he remarked in a satisfied voice:

"Nikolai Grigoruk has just gone up...."

I could tell from the way this was said that Nikolai Grigoruk was an excellent pilot and a man respected by all. I found the flickering dot of his plane on the plan-position indicator and followed it for a long time.

"You can see the hand of a crack pilot," I said. "Yes, experience comes with time...."

"But surely you recognise talent as well, don't you? There are talented professionals not only in music and the theatre, but in aviation too," Laptev interrupted me.

"Talent is the result of good training..." I continued.

"Not only. It also exists on its own. It is most important for a person to be aware of his abilities and put them to good use early on in life."

At this point our conversation was unexpectedly cut short. Reports were constantly arriving at the runway control, and the flight control officer had to size up the situation rapidly, make split-second decisions, and issue precise instructions.

But after the flying, when we met at headquarters, Laptev took up the subject again, speaking passionately in defence of something that was obviously dear to him and that he believed in totally. He was defending not only Nikolai Grigoruk, but also an idea.

"I have no doubt at all that Nikolai would have made an excellent car mechanic. He went to a technical school. But fate brought him to the parachute tower. He jumped and felt the air. You must agree, that many people make a parachute jump but not all of them become pilots. Some are frightened by the experience and do not want to continue with the sport. But Nikolai not only fell in love with parachutes, he changed his whole life. And found

himself! Talk to him yourself. He can tell you about it better than I...."

Which of us, journalists, does not enjoy interviewing an interesting young man devoted to flying, a future officer? But flying is flying, and the schedule must not be interrupted. Pilots must not be distracted from their work by other matters. So our meeting was postponed indefinitely.

That day I sat up late at squadron headquarters. Junior Sergeant Vladimir Drozdov, the broad-shouldered, handsome duty sergeant, saw a light in the office and knocked cautiously.

"Staff duty sergeant reporting," he said quietly, opening the door a little way.

"Carry on. I shall soon be finishing here."

He shuffled about, but did not go away and stood watching what I was doing. Rubbing my weary eyes, I immersed myself once more in my papers, without betraying the tension which the duty sergeant's excessive curiosity aroused in me.

"Do you smoke?" Drozdov's voice was quiet and ingratiating.

"No, I don't usually smoke, but I don't mind having an occasional cigarette," I said in a resigned voice and saw the smile appear on his full mouth.

I gave up working, pushed the papers aside, and talked to the junior sergeant about his work and his hobby. It transpired that before joining the army he had worked in a theatre painting scenery. He spoke in a professional, leisurely and benevolent way about his colleagues there. After a long talk Drozdov showed me some of his sketches in Indian ink. I liked the drawings and told him so.

"Really?" he queried, not sure whether I was being honest with him.

"Yes, really."

Drozdov became animated: his face flushed and his hair flopped onto the forehead creased with tiny wrinkles. He did not seem to know what to do with his hands.

"Then I'll make you a present of them."

"Goodness, no. You won't have any left for yourself."

"Here, take them. I'm glad, to be giving them to a journalist, you know. Do you work in Moscow? In a few years' time you might read that a certain drama theatre has arrived on a guest tour in Moscow, with so-and-so as head producer and Drozdov as head designer."

Drozdov paused, then whispered conspiratorially:

"I'm working on a portrait of Senior Lieutenant Grigoruk at the moment. There's a pilot for you. And he is a good subject to paint."

So I heard of Grigoruk for the second time.

What was he like, this man about whom both the regimental commander and an aircraft mechanic-cum-artist spoke with such respect and admiration?

The next morning I saw him.

Senior Lieutenant Nikolai Grigoruk, tall, broad-shouldered, climbed swiftly out of the cockpit of the fighter plane, stamped his feet as if to get the feel of solid ground, then went up to the plane's technician and shook him by the hand.

"This time all units and systems worked perfectly."

Sometimes when you want to talk to someone you rack your brains wondering how to start, how to ensure that the conversation will be an interesting and frank one. But this time I decided to dispense with the "preliminaries" and asked Grigoruk bluntly:

"What made you fly? You were almost a fully-trained specialist when you suddenly changed your profession."

"What made me fly?" he repeated, somewhat taken aback at such a direct question, and looked dejected. "I can't give you a simple answer to that."

"Go on, try...." I took advantage of the pause to examine the pilot. He was tall with an ordinary sort of face: thin lips, a large, aquiline nose, and eyes flecked with green and blue. His hands were large and strong.

"Well, you know, it is probably impossible to predict the course of one's life once and for all," Grigoruk began in a leisurely fashion. "We usually choose a profession at an early age. It is possible to make a mistake. And how many people have had to change their profession because of

revolution or war? One day in spring a group of us from the automobile engineering technical college signed on in the parachute section. The day of my first jump arrived. It never occurred to me that this jump would change my whole life. The first jump is a real achievement. And it is often done in response to a challenge. We were taken up by a beautiful An-2. And when I looked down at the ground, the slender threads of the rivers, the cars crawling along slowly like beetles, the houses, people, and clear-cut squares of emerald fields, I realised that from then onwards I could not live without flying. I felt the sky within me, the sky which I had reached. And I wanted to stay up there. There was nothing brave and heroic about my actions. I was simply obeying an inner command.

"I remember landing on the ground, releasing the fasteners of the parachute, and being transfixed, enthralled, dumb-founded by the beauty of the earth. I completely forgot about the fear and apprehension that I had felt before the jump. My friends ran up, asking what was the matter and looking at my staring eyes, but I was immersed in my own thoughts. Many of them thought that was the end of me as a parachutist.

"How marvellous it is. You walk into an abyss, close your eyes and the air currents turn your body blue with cold, but you are hot and your forehead is perspiring. Your body is tensed and your arms are stretched foreward as if to grasp something. Your eyes water, and opening them is painful. The air flows past, through your fingers. Yet when you see the ground, you do not want to close your eyes anymore. You want to hover, to enjoy all this beauty, and cling to the wonderful moment."

Grigoruk was speaking with great feeling, and what he said was interesting.... But unfortunately he had strayed a long way from the subject of our conversation. I was just about to choose a convenient point to interrupt his monologue, when he himself stopped abruptly, stared hard at me and asked suddenly:

"I don't think you would blame Timur Frunze for becoming a pilot, would you?"

Timur Frunze! What did Grigoruk know about him?

For Timur belonged to my generation, although he was a little older than us.

In Kropotkin Street, in Moscow, there is a grey, multi-storey house next to the Pushkin Museum. I know this part of Moscow very well. My uncle attended the Second Special School which used to be in this building. On the first floor of the house, now number 29, is a memorial plaque which reads:

"To the eternal glory of our comrades, cadets of the Second Special Artillery School, who gave their lives for the freedom and independence of the Motherland."

At that time, 1942, there was no plaque. The war was on, and no one knew how large a plaque would be needed for the names of the dead. Important messages were put up in the hall on the ground floor.

In January 1942 the following notice appeared: "Timur Frunze, an ex-cadet of the school, has died a hero's death in an air battle in the Staraya Russa area."

In the evening my uncle told me a secret: he was going to the front. Not just him, but several other cadets from the eighth class of the Second Special Artillery School.

"The main thing," Uncle said, lighting a cigarette awkwardly, "is to avoid discussing it with Krein."

Although he was short in stature, my Uncle looked like a real military man in his service shirt with its broad regulation belt, trousers, big black boots and army cap with a star. They did not manage to avoid Krein, the school's head. When he found out, he refused to let them go and summoned them all.

"You should be ashamed of yourselves, you young heroes," Krein spoke quietly, and the cadets knew that he was extremely displeased. "You're running away from the front, not to it. What will you fight with—sticks? You need to fight with artillery...."

I learned all about the special school from my uncle. "Artillery is the god of war," he often used to say. But I did not share his view, and in 1948 I entered an Air Force Special School. It was also from my uncle that I learned a great deal about Timur's life.

In 1937 Timur Frunze completed the seventh class of

the 257th secondary school and decided to enter the Second Special Artillery School. He went there with his documents and was asked to write out his curriculum vitae. He took a sheet of paper, sat down, and began to think. What was he to write, what had he managed to do in his less than fifteen years? Timur wrote: "I, Frunze...." And stopped. He had nothing to write. Absolutely nothing. His life had just started. He asked for permission to write it at home and bring it tomorrow. This was granted.

At home he wrote: "Born in Kharkov in 1923. Father, M. V. Frunze, a professional revolutionary, died in 1925. Mother, a school teacher, died in 1926. Brought up by my grandmother until she died. And in the family of K. E. Voroshilov from 1931...."

"That makes gloomy reading," thought Timur. He crumpled the piece of paper into a ball and threw it into the waste-paper basket. He wanted to write something else. But he wrote the same again, with a minor addition: "Sister Tatiana studies at the Military Academy."

His decision to become an artillery man came as a surprise to everyone. Together with his friends Stepan Mikoyan and Stepan Novichkov he had thought about the choice of a profession.

"They won't let me be a pilot," Mikoyan complained sadly. "All my brothers are pilots already."

"You are crazy," Novichkov exclaimed. "Artillery is the thing today. You can set up cannons by the border and fire at an enemy several states away...."

Timur was not so sure of the power of the artillery, but if his friends had decided....

Then in the summer of 1940 Timur Frunze announced his intention of becoming a pilot. One evening he phoned his friend Frunze Yaroslavsky. The famous revolutionary Yemelian Yaroslavsky had called his second son Frunze in honour of Mikhail Frunze.

"Frunze," said Timur, "I have decided to become a pilot. And you must become a pilot too. Alright?"

Flying ran in the Yaroslavsky family. Frunze's elder brother Vladimir was a pilot and had graduated from the

Kacha Military School, which his mother's brother Pyotr Kirsanov had attended many years earlier.

Pyotr Kirsanov fought in the First World War. He left Moscow University and gave up a brilliant career as an academic to go off to the Western front. He was the first Russian pilot with a university education. His victories in the sky were many. Here too fame did not pass this slim, remarkable young man by. The name of Pyotr Kirsanov was uttered with the same respect in Russia as that of Pyotr Nesterov. They were written about in newspapers and awarded titles and decorations.

In November 1916 Pyotr Kirsanov died a hero's death in an air battle. He was shot down over enemy territory. Wilhelm II gave orders for the Russian pilot to be buried with full military honours and for his military decorations to be returned to his family.

Frunze Yaroslavsky was proud of his famous relative and longed to become a pilot. He joined a flying club in the Sverdlov district of Moscow. Timur Frunze gave up his studies at the Special School and insisted on being transferred to Kacha.

The word "war" had a very real ring about it in this military pilot school. In August 1940 the head of the school, the famous Soviet pilot Sergei Denisov, who was twice awarded the Order of Lenin, assembled the young cadets for a talk.

"We are going to set up groups which will complete the course ahead of schedule," he said. "There is war in Europe. And it is our duty to prepare for it. The country needs pilots...."

Denisov knew what war meant. One of the most fearless Russian pilots, he was awarded the title of Hero of the Soviet Union twice before the Great Patriotic War.

Timur Frunze was put in one of these groups.

"Tatiana, I am going to be a pilot. I did not decide this on the spur of the moment, but after a great deal of painful reflection upon life," he wrote from the school to his sister. "Please understand and do not be angry with me. You know that Father would have approved of my choice. He always went where things were hard. Re-

member the Eastern front. How could I, his son, do otherwise? We have a duty to our parents' memory. It is easier for us, is it not?"

Timur did not write often, but there were some people to whom he never forgot to send a letter.

"Dear father. My choice of a profession was pre-determined by history," he wrote to Kliment Voroshilov. "In a modern war it is aviation that will be the most threatening weapon. I am the son of famous parents. So I must possess the most powerful weapon. You have often repeated father's words to me: 'My son will be a true Bolshevik. He will bear a dual responsibility: as the son of the revolutionary and as a member of the younger generation.' That is true, and I shall always carry it out.

"I have not started to fly yet. I want to very much, but I want to fly solo. In flight a man acquires wings and dignity....

"In short, I am studying, and think of you constantly."

Timur explained his change to flying only to those who were closest to him. In the Central State Archives of the Soviet Army I read Kliment Voroshilov's correspondence with his adopted sons. There were several of them, young boys whom the People's Commissar for Defence adoped and cared for like a father until the end of his day.

Timur wrote to Voroshilov about his desire to fly in the autumn of 1940.

"...Oh, if only I could describe to you the feeling I experienced when I went up for the first time! The artillery is nothing compared to that! I already have 2 hours 44 minutes flying time (with an instructor, of course). We have a wonderful instructor, Lieutenant Korshunov. He graduated from Kacha with distinction and has already trained three courses.

"It's so irritating! Right in the middle of flying we have got the day off today. And tomorrow the whole squadron is flying, except for our group which has theoretical studies. And I'm just dying to fly. In general I am very happy. The course, even the theoretical part, is extremely interesting.

"...I now have eight solo flights.... The teaching is well organised and equipped with everything necessary. So everything is up to us. But lessons are going well so far. Although I can't say that the theory we are being taught is particularly easy. The syllabus is condensed, but its range is as broad as that of any flying school. All the essential subjects are taught here, and taught thoroughly in great detail. It is not that I find them difficult, but that there is so little time. One has to use each minute literally, and not just use it, but try to put it to the best possible use. You rush about all the while, trying to keep up. Still I am well enough organised now to be able to devote 15 or 20 minutes a day to French, so that I don't forget it."

Timur Frunze's personal file contained testimonials, references and reminiscences about him.

"We know Comrade Frunze from serving together with him as a cadet with a strong character and inflexible willpower....

"Young Communist League Secretary."

"During his period of training in the squadron on U-2, UT-2 and UTI-4 aircraft he has shown himself to be a highly educated person with great gifts and abilities....

"Loves flying, loves everything new in it, particularly aerobatic manoeuvres.

"Good flying qualities. Puts a great deal of effort into learning how to fly, does not like being behind." This was written by squadron commander Captain Ivanov.

"Manages to learn everything without extra study outside the classroom. Devotes his leisure time to reading historical literature in foreign languages", we learn from a report by the squadron's executive officer.

Yes, Timur knew French and German. He read *Le Compte de Monte Christo* in French, and Goethe and Schiller in German. He always had a passion for books.

In his diary Timur wrote: "One must constantly improve oneself. Any character can be changed. Patience, skill, even physical strength are all things that one can develop in oneself, if one really wants to, if one is not too lenient with oneself...." Underneath is written: "Father". He had taken the passage from a book by Mikhail Frunze

and underlined the words "if one is not too lenient with oneself".

Timur was not lenient with himself. Flight commander Korshunov wrote in his graduation report:

"General development excellent.... Excellently developed physically. Polite manner in his dealings with others. Energetic, enterprising, persistent and steadfast in carrying out his decisions....

"Studied the flying programme well and consolidated his knowledge and skills brilliantly. Tended to overestimate his ability to handle an aircraft during flying training. Is not afraid of carrying out any experiments in a plane and not averse to doing things that are not allowed. One case of over-fulfilment of a mission in the flying zone, for which he was suspended from flying. His piloting technique still requires careful supervision. Passed the test on the theory and practice of flying with distinction."

They wrote the truth without trying to conceal his shortcomings.

Did this young pilot, Nikolai Grigoruk, know about all that?

I looked hard at him. He kept silent, evidently waiting for my reply to his question.

"No, of course I would not blame Timur," I said. "If he had decided that he could be of more use in aviation, how could he have done otherwise? After all, he was training for war, to defend his country. It is the patriotic duty of every young man. It is a task which faces our generation as well. Although we may have to solve it in a way that is qualitatively different."

"I'm philosophising. What is the point of talking about Timur Frunze," I thought, "if Grigoruk does not know anything definite about him." As if divining my thoughts and determined to dispel my doubts, Nikolai said suddenly:

"In November '41 Timur arrived at the regiment which was defending Moscow. Each of us has something that is particularly precious to us. A village, river, field, or even haystack. Timur, also, had a place that was dear to

him, of course. But Moscow is above comparison. It has everything. And Timur realised full well that his generation bore the responsibility of defending Moscow. Even later, when his regiment was moved to the North-Western front, he continued to fight for Moscow there.

"The museum has Timur Frunze's personal file and a copy of his correspondence with Kliment Voroshilov. This is what Voroshilov wrote in one of his letters:

"'I recall an episode from Timur's life that I cannot forget. When the war had begun and Timur graduated from the Kacha Military School for pilots, I met him, now more grown up, in Kuibyshev, where many governmental organisations had been temporarily evacuated. The meeting was pleasant and moving. He told me briefly about his graduation from the flying school and said that he was now going to the Air Force Administration for a posting, i.e., for an appointment to a unit on active service. A few days later we set off for Moscow by plane. We flew together, and all the way he talked about one thing only, asking me to help him get to the front as quickly as possible. After this Timur, who had not yet received a posting, came to see me several times and, in spite of the fact that I was very busy, kept on about the same thing, how to speed up his posting to an operational unit. I promised to take the matter up and help him. I telephoned some of his superiors, but the matter somehow dragged on. Timur continued to remind me of his request, but by now he was upset and nervy....

"'You obviously think that I am politically unreliable,' he said to me. 'But you knew my father well, and I want to be like him in every way. I shall fight the enemy skilfully, mercilessly. I will not spare my own life. Please arrange for me to be posted to the front as quickly as possible.'

"'I felt sorry for Timur, did my best to calm him down, and said that I would go on phoning whomever necessary....

"'Yes, please phone them as quickly as possible. You see, I'm afraid that war might finish at any moment, without my having taken part in it, without my having

struck a single blow at the Nazi scum, the foul enemy of our country and our people.'

"You should not be afraid that the war might end suddenly, Timur. That would be a cause for rejoicing," I replied to him. "But, unfortunately, the end of the war is not in sight ... it is just beginning to warm up...."

Nikolai talked about Timur, and I looked at him with respect and affection, thinking: "Of course, Nikolai Grigoruk knows about Timur. He probably knows just as much as I do. And I did not realise it.... There's the new generation for you!"

Lenin Scholarship holder Nikolai Grigoruk graduated from flying school with distinction and was posted to an air regiment in Major Romanov's squadron.

He felt a thrill of delight each time he sat down at the control wheel. He flew day and night, in all kinds of weather. He loved the sky, for there, above the clouds you lose your sense of time. You can plunge down from endless space, almost from the sun itself, pierce the clouds and hover in the crepuscular semi-darkness that conceals the earth in a grey mist. Then you can soar up again and be by the sun again in a matter of seconds.

The sky called to him. It was as omnipotent and powerful as the sun, and as beautiful as the earth. He had grown used to always being in the sky, when suddenly ... He fell from a piece of sporting apparatus and broke his arm. Nikolai realised that this might mean the end of flying for him.

He lay in hospital, thinking bitterly of the day when he would be discharged from the Air Force. What would he do with himself then? Go back to his native Byelorussia and find a job as a mechanic at a motor-transport depot?

His friends from the regiment and flying school came to comfort him and bring him news and letters. Nikolai read books and tried to distract himself from his sad thoughts, but he did not always succeed and then, pretending to be asleep, he would close his eyes and think about the life that awaited him.

He thought about working at a motor depot, studying at an institute, getting married, going to see his elder

sister, and.... Then it became even more hard to bear. He learned that his sister's son Ruslan was going to be a pilot. The boy studied well and was good at sport, in a word, he was following his, Grigoruk's, advice and example, and would soon overtake him.

...Now all that was behind him, and Nikolai remembered his broken arm as a stiff test of character.

"A great deal has been written about Timur Frunze," he continued. "All pilots, and not only pilots, know how he met his death," said Grigoruk. "Timur Frunze is an example to us all. He died at the age of nineteen and has remained for us a young man, someone of our age. Not everyone succeeds in showing such courage, such heroism, at nineteen. This is why we admire him and will always learn from him. I think that all my comrades are prepared for the harshest tests...."

The day before political worker Victor Yadov told me about another test that Grigoruk had endured.

They were doing exercises. Major Romanov's squadron was given the mission of intercepting a group of "blue" planes flying at a high altitude towards an important target. After this difficult combat mission had been carried out one of the units in Grigoruk's plane failed.

Grigoruk could have baled out, but he chose not to. He decided to save the aircraft at all costs. Thanks to his great experience, courage and self-possession he managed to reach the aerodrome and land the plane. But Grigoruk did not tell me about this himself. He is not the boastful kind. He does not exploit difficult situations for his own benefit.

If you ask him about that episode, he will tell you a story about another crew whose bravery he sought to emulate.

It happened recently at an aerodrome on an ordinary summer day.

The crew commander Colonel Valentin Ivanov took the huge aircraft, as big as a multi-storey building, up to the runway. Then came the final exchange with runway control:

"Request permission to take off."

"Permission granted. Good luck."

"Message received. Thank you."

"Permission granted!" A great deal lies behind these two words: many hours of training by the flying and ground crews, and much excitement, daring and quest because each flight is a venture into the unknown, an encounter with something new. The engines roared deafeningly. Tons of scorching hot air were driven through them. The plane trusted the air, breathed it, and rested on it. The air held the gigantic machine, lent its invisible shoulders for support, and served as a staircase for mounting into the blue.

Their altitude was ten metres.

This flight was a test one. The crew had been in the air for seven seconds. As yet no one knew that it was not the plane but the stamina, skill and courage of the crew that was being put to the test.

Altitude of two hundred metres:

"Something is shaking, Commander."

This was said by test navigator Lieutenant-Colonel Yuri Lovkov, who had felt the fuselage vibrating.

And immediately the anxious voice of ground was heard in the head-phones:

"Oriole, look at your temperature."

"Leopard, temperature normal," was the reply.

Test pilot Vassily Kaportsev reported:

"The undercarriage is not retracting, Commander."

"Just a minute, lads, we'll see what's going on."

Ground knew that Ivanov only addressed his crew as calmly as that in very difficult situations.

"Oriole, what about the panel?"

The "fire in engines" panel had gone out.

"Oriole, retract the afterburner."

"Leopard, message understood, I have retracted the afterburner. I shall fly past you."

The plane stopped its rapid ascent and circled like a wounded bird, looking for a place to land.

Without decelerating or discontinuing his radio conversation with ground, Ivanov made a right turn away

from the town to avoid the plane crashing there and to fly by the control tower.

Flying to the control tower took four seconds. Ground was silent, so was the crew. The tape recorder on the plane recorded the pause. It also recorded all the words of the crew, its state, and the tempo of work on board. Later the tape was to tell us the bitter truth.

"Oriole," said the flying control officer, "fly up to an altitude of not less than two thousand metres. Your engine bay is on fire. Use the fire extinguishers and prepare to bale out."

Leave the plane! Ground has the right to issue this order. It weighs up everything before doing so. That meant things were bad.

Many years ago, when Valentin Ivanov was still studying at the 5th Air Force Special School in Gorky he had chosen as his idol a man on whom he was to model his life, Alexander Pokryshkin. Ivanov did not simply copy the famous pilot's actions and deeds. He studied his life and the combat technique that had won him immortal fame, and read his books. One day he read the following passage: "It is important not only to shoot down the enemy, but also to keep your plane and your life. And this requires skill, I would say, great skill."

Was not a test pilot's skill determined by the number of planes he had tested? And was not a lost plane a black mark in his work?

The plane must not be abandoned. It was not just a question of the prestige of the pilot and crew. Each new plane is a step forward in science and technology, in the defence of the country's air frontiers. A new plane is like a link in the immense chain of technical and scientific progress, and a sudden break....

"Leopard," Ivanov spoke to ground, "which engine is on fire?"

"The left one."

Ivanov looked at the control panel: the lights indicated a fire in the engine pods.

"Something is seriously wrong, Commander," reported the test radio operator, Major Victor Spirin.

"I can see the shadow of smoke from our plane on the ground," pilot Yuri Lovkov said over the intercom.

And again the anxious voice of ground was heard in the head-phones.

"What is your height, Oriole?"

"Four hundred metres."

"There is a huge jet of flame coming from your aircraft, Oriole. You are on fire. Gain altitude immediately and bale out."

"Message understood."

Ivanov pulled the wheel towards him—the plane did not go up.

"I'm preparing to land, lads," said the commander. "Anyone who doesn't want to take the risk can.... Well, be prepared for the worst."

They replied as one man:

"Yes, Commander."

A hundred heroic seconds had already passed. The second hundred was now mounting up.

Heroic seconds! No, heroism did not begin in the air. It began much earlier. Perhaps at the secondary school to which Ivanov was forced to return when his mother fell ill. He told his friends:

"I've got to leave the special school, because mother is ill, but I won't give up flying."

The year of 1949 was a difficult one for Ivanov. He studied at school at the same time as working as a laboratory assistant, helping at home and looking after his mother and the younger children. It developed his character and made a man of him.

A river is made up of streams and tributaries. And a man's life of events, both major and minor, meetings, doubts, joys and sorrows.

Valentin Ivanov was married, about to become a father, and had already achieved a great deal in life when he suddenly announced his intention of becoming a test pilot.

Did he know what he was taking on? Yes, he did. He possessed reserves of knowledge and energy which could be put to proper use only in this new and very difficult

work. Only in the work of a test pilot. He did not know what it was like yet, but he had read a great deal about it and took this step into the unknown consciously, attracted by more than just the romance of the profession.

He did not parade his knowledge and achievements. He intended to be an obedient pupil of test pilots who were already famous throughout the land. When he had been through all the necessary formalities, he was given permission to fly.

In the morning by the hangar he was shown an Il-28 and told:

"It needs to be tested. The engines have been changed. It's the second flight. You're doing it for the instrument designers."

Ivanov listened in silence. He realised that his period of apprenticeship was over. He was on an equal footing with the rest now. He could not object that he had not flown an Il-28 for five years. If only he could have one introductory flight. But experienced test pilots do not repeat the same flight twice, do they? For them each flight is unique. So he took the plane up.

At the time he did not know that he was being watched, that there were still some doubts about him, and he was not trusted yet.

But that day the doubts disappeared. He won trust and acceptance. After that there were many more flights, risky, dangerous and difficult ones.

On the occasion about which Grigoruk was talking:

"They did not abandon the plane. To my mind, leaving one's plane not only means losing the esteem of those around one, it is also a personal tragedy for the pilot. We must fight to the very last to save our plane. That is why I did not leave mine either."

Nor did Grigoruk mention the fact that all the reports on his flying in the regiment were excellent, that he had been elected Secretary of the Party Committee, and that a general who was testing flying technique once said of him:

"You are a fine pilot, the pride of our aviation, and its future."

"I expect you read a lot, do you?" I asked Nikolai,

admiring his ability to construct sentences and express his ideas clearly and fluently.

"I would not say a lot, but I like reading. When I have not read for a long time, and that does happen occasionally for a variety of reasons, I not only feel intellectually weak, but my thinking seems to be inhibited. It is not a question of being able to think in categories, but of the brain's ability to apprehend what is taking place. 'People stop thinking when they stop reading.' I think it was Diderot who said that."

Senior Lieutenant Grigoruk talked readily about everything that interested me, about his comrades and commanders. He spoke about them warmly, in the way in which people talk about real friends.

"Major Romanov?" he repeated with a smile. "He's a real commander, worthy of emulation. He has a wide range of interests, but there is one thing to which he is always faithful: his method of training pilots. He teaches us a lot, demands a lot, and gives us a lot of trust. I think that trust is one of the most effective educational factors. And our commander makes full use of it. They say there are actors of a single part and writers of a single book. But I do not think there are, or could ever be, pilots of a single flight. For each flight is unique, each flight is the creation of its author. How can one compare Chkalov's flight to Udd Island with his flight to the USA? Major Romanov says: 'Pilots are born in struggle, geniuses mature in quiet.' He creates a lot of difficulties for us, but we get a great deal of pleasure from overcoming them. If I am ever entrusted with commanding a squadron, I shall try to be a commander like Romanov."

A Soviet military leader once said: "I like meeting young officers, their energy is infectious. Find time to do this, please, I promise you, it will be to your mutual advantage."

The meeting with pilot and Communist Nikolai Grigoruk made an indelible impression on me.

Nikolai Grigoruk is no exception in our army. Aviation is rich in such people. They are its present and future.

Time passed. Nikolai Grigoruk graduated from the

Gagarin Academy, married, and was promoted to the next rank.

A great deal has happened since our meeting in August 1968.

"We talked about planes, do you remember?" he said. "The best way of becoming a good pilot is to land your plane in your aerodrome. This sets up traditions for us, pilots, and they are handed down from generation to generation. Of course, Timur Frunze was also continuing the family tradition of whole-hearted dedication. We, pilots of the seventies, seek to emulate him and many other heroes."

The wind blows over the airfield with a long, angry howl. People usually try to keep out of the wind. But not pilots. For they always fly out to greet the wind. Resting on it, they take their plane up into the blue.

Yuri Gagarin

A flight into outer space is always a venture into the unknown, a mixture of fact and fantasy, civic and national pride, the joy of expectation and anxious concern for those who are risking their lives.

The Soviet Union was the first to launch an artificial earth satellite. The first to obtain photographs of the far side of the moon. The first soft landing on the moon by an automatic station. The first television transmission from the surface of our natural satellite. The first artificial lunar satellite. The first group flights and flights of docked spacecraft. The first woman astronaut. The first egress into outer space. The first docking in outer space and creation of an orbital station. The first automatic space station, with the help of which a sample of the surface of the moon was obtained and sent to earth. The first automatic lunar roving vehicle, Lunokhod-1.

The most thrilling page in this great outer space epic is the flight of Yuri Gagarin.

Yuri Gagarin. We have grown used to this name, and it has become a symbol of courage, a criterion of daring. It is known throughout the world. And it won immortality on a day in April 1961.

This is an account of the last month of Yuri Gagarin's life, based on his diary, talks with his friends, and personal observation.

1 March

Gagarin woke up early. He walked into his daughters' room, kissed them, and then went to his study. Drawing the curtain, he gazed out of the window for a long time. There was a difficult day ahead. His wife Valentina was

going to hospital, and tomorrow morning he was flying to the cosmodrome.

He took some books off the desk and put them on the shelves. He could not live without books. He occasionally wrote himself mostly reflections on his experiences and attempts to look into the future. Now he would not be able to sit down at his desk for many days.

After breakfast Gagarin set off for Moscow. In the evening he went to the Officers' Club of the Zhukovsky Air Force Engineering Academy for a literary evening organised by the Military Publishers. There he gave a talk to his readers.

2 March

Colonel Gagarin flew off at dawn. He ran lightly up the ramp into the plane, greeted the crew and requested permission to occupy the right-hand seat.

"What a splendid profession ours is!" he said, putting on the helmet with ear-phones and making himself comfortable in the co-pilot's seat. "I want to fly. As soon as I get back from the cosmodrome I'll go back to flying."

Gagarin had been present at the launching of many spacecraft and satellites. And he was on his way to another one. He was awaited at the cosmodrome by everyone involved in the launching. Many astronauts, far from earth, had heard his voice from the control tower, a cheerful, strong voice, that had often come to their aid. In the remote starry expanses it had relieved the terrible solitude and inspired confidence.

3 March

It was Sunday, a normal working day at the cosmodrome. A series of launchings was to take place. Everyone was absorbed and concentrated, as people who know their job well usually are. Colonel Gagarin arrived. He was greeted warmly.

He was unaffected and sympathetic. Everyone who had dealings with him, carried away a tiny part of that richly endowed nature.

One evening, here at the cosmodrome, Gagarin went out for a stroll on his own. He had barely taken a few steps along the black asphalt path, which merged with the

dark night, before he found himself surrounded by engineers, technicians and specialists. He stopped and looked round at them gaily.

"Out for a smoke, eh?" he asked a tall, black-haired captain.

"Out for a break, Colonel," the captain replied seriously.

"Then let's have a walk together, shall we?"

"Yes, Colonel."

"In silence, eh?" Yuri smiled. The evening was made for conversation. The sky gazed mysteriously with thousands of twinkling eyes, and a light northerly breeze stirred the foliage, cooling the air.

"In 1871," Gagarin began, "newspapers in many countries carried reports on the building and flights of the first balloons. These flying machines were called air projectiles, aeronautical cylinders and other names that were complicated and unintelligible in that day. Hardly anyone knew that as early as 1812 the inventor Leppich 'under a veil of great secrecy' was given premises near Moscow and supplied with all the equipment necessary to build an air balloon.

"The governor-general of Moscow, Rostopchin, even ordered the number of workmen in Leppich's workshop to be increased to one hundred and obliged them to work seventeen hours a day. The flight was to take place on 15 August.

"But the secret did not remain one for long. The inhabitants of Moscow learned about 'the miracle capable of lifting boxes with explosive shells and throwing them down on the enemy from a great height, sowing destruction'.

"Rostopchin saw the balloon as a means of saving Russia from Napoleon. The War Department prepared to deal the French army a blow near Smolensk. But 15 August passed without the miracle happening."

The conversation turned to Bulgaria which Gagarin had visited that summer, when he was the first foreigner to be awarded the title of Hero of Socialist Labour of the Bulgarian People's Republic.

4 March

The whole day was taken up with official business. Colonel Gagarin visited all the sections and acquainted himself with the special features of the new launching.

In the evening he rang home and talked to Lena and Galya. His daughters told him their news in turn: their friend Alla had a new toy, Mishka from next door had broken a window with a snowball. Andrei Volynov had recited some nice poems to the children from memory.... Gagarin listened to his daughters and laughed heartily.

5 March

The radio issued the following TASS report: "On 5 March, 1968, the launching of the artificial earth satellite Cosmos-204 took place in the Soviet Union. The satellite is carrying scientific apparatus designed to continue the study of outer space in accordance with the programme announced by TASS on 16 March, 1962." And in the meantime far from Moscow another rocket with the artificial earth satellite Cosmos-205 had mounted the launching pad.

While the TASS report was being passed on by teletype, while new editions of newspapers were being set up and the observatories of all continents were beginning to track Cosmos-204, another report came over the air: "Cosmos-205 is in orbit."

Late that evening Gagarin emerged from the coordination computing centre.

After many hours of tension, clattering machines, and general hubbub, it seemed strangely quiet outside. Gagarin looked up at the sky, automatically picking out the North Star and the Great Bear and gazing for a while at the Cygnus constellation.

6 March

All the sections at the cosmodrome were analysing the information received from the satellite. Preparations were in progress for the next launching.

Finally the astronaut managed to take a breather. He had different work today. He had brought with him the proofs of the book *Psychology and Outer Space* written by him together with Vladimir Lebedev. It was perhaps the

first book to combine the reflections of an austronaut and a scientist. Gagarin read the proofs, carefully checking the factual material and making the necessary additions.

Then he took another look at *Craft Venture into Space* by A. Kiselev and M. Rebrov, published recently by the Military Publishers. He had written the introduction. He liked the book. It was an interesting guide to the first few decades of Soviet astronautics. The introduction contained the following lines: "We live in a remarkable age. The wind of travel fills the sails of the 'cosmic caravels' about to set sail for distant and unknown shores."

In the evening he rang Zvezdny Gorodok and spoke to Galya and Lena. The girls were waiting for presents—toys.

7 March

In the morning there was a meeting to discuss the first analysis of the information received from the satellites. They showed that the equipment was working properly. The State Commission passed a decision to continue the work and fixed dates for new launchings. Information was being constantly arriving from the tracking and monitoring station: everything was in order.

Gagarin sent his wife a greetings telegram for 8 March.

In the evening he gave a speech at a meeting held in honour of International Women's Day. In his speech Gagarin mentioned some little-known facts from the history of aviation, connected with the names of women. In 1904, in the face of danger and prejudice, a Russian woman by the name of Turchaninova went up in a balloon. A few years later another Russian woman, Ilyinskaya, went up in a balloon built with her own money. In 1911 Lydia Zvereva became the first Russian woman pilot. And in February 1925 Zinaida Kokorina received the rank of military pilot.

Returning to the present day, Gagarin spoke about Valentina Tereshkova.

"Our aviation is developing rapidly. But no matter how complicated the equipment, it will always obey the gentle hands of our womenfolk. And our women will

again be the first, as their predecessors were before them," were Gagarin's concluding words.

One of Gagarin's close friends said:

"You're as galant as a Frenchman."

"No, I'm as tactful as a Russian. I get on with women splendidly. There are three of them in my family."

8 March

Gagarin rang home, congratulated his daughters and his sister-in-law who was staying with them, and sent a greetings telegram to his mother in Gzhatsk.

At midday he rang Valentina Nikolayeva-Tereshkova at Zvezdny Gorodok to congratulate her on Women's Day.

9 March

Gagarin received permission to go home to Zvezdny Gorodok.

In the evening he invited his friends to celebrate his birthday. They got the samovar out, and Gagarin treated them all to some delicious tea. He liked having guests and long, noisy discussions round the table.

The conversation turned to the situation in Czechoslovakia. Gagarin recalled his first visit there.

"One day we were driving past a village, I don't remember exactly what it was called. A rather short young man came up to us and took us to the cemetery. On one of the graves a red five-pointed star had been fixed to a metal pyramid one-and-a-half metres high. Under the glass was a small photograph of a Soviet sergeant, and below it the inscription: 'Konstantin Gladkov. Born in 1925. Died 1.07.45.'

"'You see,' said the young man, 'he died after the war was over. This is how it happened.'"

Gagarin told his guests the story he had heard.

A small house stood in a secluded spot. In it lived a young woman. She was soon to give birth. At that time, just after the war, uncaptured Nazis went into hiding in the forests and mountains of Slovakia. One day some of them burst into the house. They demanded food from the woman, and when she refused they began to beat her. One of them kicked her in the stomach. At this time a Soviet sergeant appeared in the village. Hearing the

woman's cries, he rushed to the house. A fight ensued. He received eleven wounds, but saved the woman. The Nazis fled. She bandaged the wounds of her rescue, who tried to ignore the pain and joked: "Death didn't get me in the war, and it won't get me now either.... If you have a son, call him Yuri. It's a good name. Oh, I forgot, you don't have that name here. In your language it is different, isn't it?" The woman saw how critical his condition was and ran for help. But when she returned about forty minutes later with a doctor, he was dead. That evening she gave birth to a son and called him Yuri. He was their guide, the young Czech.

10 March

On the flight to Moscow Gagarin sat by a window and looked out nearly all the time. His thoughts raced ahead to the future. The new launchings had yielded good results. His visit to the cosmodrome would be discussed with General Nikolai Kamanin, and he, Gagarin, would make suggestions.

At home they had not expected to see him today. While supper was being prepared, he phoned Valentina. He wanted to go and see her at the hospital straightaway, but she persuaded him to stay with the children. After supper he read a book to the girls and then went through his post.

The astronauts' post began with the first letters to Gagarin.

It is a strange phenomenon, this astronauts' post, as it is now called officially, and the addresses on the envelopes are also strange: "Ministry of Outer Space", "Union of Astronauts", "Space School", or simply "Astronaut So-and-so, Moscow".

The letters are all different, yet they have something in common. Perhaps it is the sincerity with which the writers describe their joys and failures and request advice and friendly assistance. Here is a short note from Anatoly Bobranov in Tula addressed to Yuri Gagarin: "...Please take me with you on your next flight. I am a driver and I might be able to help." There are thousands of letters like that. But here is a letter of a quite different

kind.

"You must receive many letters congratulating you on your flight round the globe, but I am sure that you have not had one from a person who has lost both arms. I have neither arms nor legs, but I have a very strong desire to live and work. I became an invalid while defending my country against the fascists. In 1942, at Stalingrad, on 17 December, I went into battle for the last time on my own two feet, holding a rifle in my hands. So now I am an invalid, but I am writing this letter myself, without anyone's help, writing to you who have opened up a new age, the age of space flight. Thank you, 'celestial brothers', who have brought immortal renown to our Motherland. It will never be forgotten—it is history and our glory.

"Thanks to your parents who nurture such heroes. Thanks to your wives who support you in such a difficult undertaking....

"Anton Pustozerov."

There is a letter about a young machine operator who was inclined to be lazy and slipshod. Whenever people talked to him about it, he promised to do better, whenever he was ticked off he swore he would mend his ways. But his work got worse and worse. His fellow-workers' patience was exhausted. The machine operator was called before a Comrades' Court. What were they to do with him? Someone suggested that they should dismiss him and have done with it. Then a lathe operator got up and said: "I suggest taking away his surname. He is disgracing it!" The lad turned pale. He had not expected to hear this. Perhaps for the first time in his life he realised then how low he had sunk. His surname was Gagarin.

And the letters from abroad. There are far too many to mention them all here. This is one of them:

"Dear Friend,

"Today I have sat down at my desk to write to you about my intention. I am an old man, my life has been spent in restless wanderings far from my native land. I have moved from country to country, from town to town.

Oh, what a hard job it is looking for work. Now I am a Canadian citizen and have a house, a wife and two children. But my homeland is Russia. I cannot evade this revelation. To be honest, it is because of this that I decided to write you a letter. I cannot complain about my life, for I am the one who chose it.

"We left Odessa in 1919. It is not clear why my father went abroad. He was a small trader and had no capital to speak of. If he had anything on his conscience, it was links with the black market. But the Bolsheviks did not shoot people for that. Anyway he left. Mother begged him not to leave his home, his native land. He beat her and cursed her with foul language which has left a bitter taste in my mouth to this day. Mother pleaded with me to stay and try to influence my father. But I was deaf to her entreaties. I wanted to go to France which was where my father was heading. My mother would have stayed, if she had not been so fond of me, but next morning she came to the boat too.

"We had money and access to the circles of Russian emigres who had taken shelter in that foreign land. Mother could not get used to the life. She often cried, missed everything Russian terribly, and soon died. I could not understand her, for, like all the emigres, I regarded my stay in Paris as a temporary one. But emigre life became desperate, hopeless. Some shot themselves, while others turned to drink or women.

"Then I went to America and learnt there that Hitler had invaded the Soviet Union. Flashy, boastful, arrogant America got frightened. Hitler had become a real threat to America too. Roosevelt stretched out his hand to Stalin. The newspapers wrote about the war, but the tone of the reports on Russia was now quite different. America was seeking to ingratiate itself with Russia. Awaiting painfully for the outcome, I too gradually began to understand things. Russia alone could defeat the fascists. My homeland, my birthplace. I left the USA and celebrated V-E Day in Paris. I felt the urge to go east, to my country, but my wife Nicole restrained me. She was expecting a child and could not come with me. She begged me not to leave

her. We went to live in Canada, north-west of Montreal.

"I have told you everything about myself. I had to do this. It is the first time in my life that I have talked about my past.

"Mr. Gagarin. Next year EXPO is to be held in Montreal. All the Russians are looking forward to this encounter with their native land. I shall come to Montreal and spend several days there. I hope you will be there. Please have a talk with my boys and persuade them to go back to Russia. I cannot think of any greater happiness for them, or for myself and Nicole, than returning to my native land.

"I believe in your kindness and I hope, hope!

"I do not have the gift of eloquence and am guilty of a great deal, but you have a pure heart and a clear mind. You are all-powerful, people worship you, including my boys, of course.

"In Montreal I shall meet you in the Soviet pavilion. I shall be carrying your portrait. I am over sixty and wear a Ukrainian shirt on my days off.

"We are looking forward to the meeting,

"Yours sincerely, Grigory D."

The post comes every day and every day it brings a pile, no, a mountain of letters for Gagarin. In three years alone (1965-1967) the astronauts received 50,914 letters, 15,386 of which were for Yuri Gagarin.

11 March

Early in the morning Gagarin walked round Zvezdny. Unlike other towns, it has no long highways or impressive architectural ensembles, nor does it boast any old monuments. It is a very young town, born about fifteen years ago in a picturesque part of Moscow Region. But it has most of the things that one finds in other towns: office buildings, blocks of flats, a club, a school and a supermarket.... Yuri has a special connection with all this. He laid the foundation stone of the kindergarten. Together with the designers he chose a site for the club. And it was at his suggestion that the town's administration and Communists set up a museum.

"Let's have our own museum," he said to the

Communists. "It will be a kind of report on our work, and in any case a museum is a necessary thing—for us, for history and for the younger generation."

Today the museum contains more than three thousand exhibits. They are presents that the astronauts received during their travels. Presents from factory and agricultural workers, heads of states and governments, and public bodies in all parts of the globe. They are, without a doubt, an expression of love for and gratitude to the Soviet Union, an acknowledgement of our country's leading role in space research.

Each of the exhibits has its own story. The Greek national hero Manolis Glezos gave astronauts Pavel Belyaev and Alexei Leonov a present which he had made while in prison. Day after day, for many months, he made a coloured straw pattern based on ancient Greek myths.

A large section in the museum is devoted to photographs and albums, presents and souvenirs, pictures and personal possessions that belonged to the astronauts or travelled with them in outer space. Yuri Gagarin's map-case. A box of pencils, linked to one another by a long, firm thread. It was with these pencils that Alexei Leonov sketched space landscapes during his flight. Everything connected with the history of the space team has been collected here, in this museum.

Yuri felt braced by his walk round Zvezdny Gorodok. His first day back at work after the visit to the cosmodrome would be very busy.

At a meeting with the head of the astronaut training centre Gagarin reported on the work he had done at the cosmodrome and submitted proposals.

Around midday he went to Moscow to report on the results of his visit to the cosmodrome to Colonel-General Kamanin. The general was the astronauts' mentor. A Hero of the Soviet Union and a man with the most interesting life, he sought to hand on the experience, knowledge and traditions of the first Soviet aviators.

From there Gagarin went to the hospital.

Yuri and Valentina tiptoed out of the ward, got in the car and had a drive around Moscow. It was a sunny day,

with a breath of spring in the air. Yuri told his wife about his visit to the cosmodrome. They arrived back at the hospital in the evening. With an embarrassed smile, Gagarin said to the doctor on duty:

"Please forgive me. I took Valentina on a spring drive around Moscow."

"Of course. We left the nearest door open for you."

So that was it! And he had tiptoed out. Good for the doctors.

12 March

Gagarin prepared the breakfast and his daughters helped him. After breakfast they drew up the day's timetable together.

In the afternoon he had a medical check-up and was pronounced fit for flying. He was in a hurry to complete the pre-flight training. He studied the exercises and read the manual and the latest instructions.... How he wanted to fly! He asked to be relieved of all other duties for the time being.

At 15.00 he telephoned Lieutenant-General Moroz, a member of the Military Council and head of the Air Force Political Department. He requested permission not to attend the Party Conference of the Leningrad district of Moscow as a guest, because of the forthcoming flight. General Moroz gave him permission, but advised him to phone the district Party Committee.

In the evening Gagarin wrote in his diary: "There is no stronger pull for me, than the desire to fly. A pilot must fly. Always."

13 March

It was the day of the flight. After lineup Gagarin walked to the plane, a two-seat fighter with a number 18. There was a short spell of cockpit drill. The weather was most favourable. Visibility—two metres, cloud height—not lower than 200 metres, and ground wind speed—15 metres per second. There was a cross wind. Gagarin circled, then did a check flight in an enclosed cabin.

He was very pleased with the day. He had flown 1 hour 52 minutes. In the start area he read a wall newspaper that said: "Gagarin is on his way to the stars!"

He was glad that his comrades were pleased for him. The break in flying did not seem to have affected his ability to handle a plane.

In the evening he phoned Valentina to say: "I'm flying again!"

14 March

Gagarin filled in forms in his study.

He rang Lieutenant-Colonel Ulyanov at the Club and asked him to reserve two seats for a concert.

Then he took Galya and Lena for a walk in the forest. They came back wet and covered with snow.

In the evening he occupied his usual seat, number fourteen, in the ninth row. The next seat was empty.

"Why did you buy two tickets, Yuri?" asked Lieutenant-Colonel Ulyanov.

"I don't go to concerts on my own. Valentina always comes with me."

Gagarin enjoyed the concert. Afterwards he went up to see the actors and thanked them warmly for their performance. They invited him to be photographed with them.

15 March

The plan for Astronauts' Day celebrations was discussed in the Political Department.

In the evening he had a talk with Boris Volynov for whom he had a great liking. Gagarin was perhaps the first person to detect Volynov's enormous reserves of energy capable of achieving great things.

16 March

In the morning Colonel Gagarin held a meeting of the managerial staff at the astronaut training centre.

Galya and Lena persuaded him to go to the cinema, and after supper they got presents ready to take to Mummy at the hospital tomorrow.

17 March

Dressed in their best clothes, Yuri, Lena and Galya got into the car and drove off to see Valentina. They bought flowers and presents in Moscow. Yuri told his wife the news and, of course, spoke about his flying again. Valentina approved of his persistence. She understood

her husband's state and knew that after his flying practice there was bound to be another space flight.

But Yuri had to fly, didn't he?

They arrived home round evening. The girls were pleased at having seen their mother. Lena set down at the piano.

Yuri took his diary and made notes of the events of which there had been so many in the last few days. He did not keep a diary to remind him of future engagements. He used it to record interesting conversations, his own reflections, and impressions of new acquaintances. He often analysed his own behaviour most critically. Unfortunately he did not keep his diary up all the time. His frequent business trips, visits abroad and official duties made it impossible for him to write it up each day.

18 March

In the morning Gagarin made preparations for the next day's flight. At 15.00 there was a meeting of Zvezdny Gorodok Communist Party members to discuss the question of the role of Communists in carrying out new space programmes. Party leaders, astronauts, doctors, engineers and scientists all expressed their views. In the interval Yuri said to his comrades:

"How impressive, exciting and interesting it is. What great vistas are opened up by space exploration! The next thing will be the study of the ocean. The underwater world is fascinating, incredibly beautiful. We are trying to go higher and higher, and the aquanauts to go lower and lower. We are planning to build laboratories and dwellings in outer space, and the aquanauts to erect towns in the depths of the seas and oceans."

Gagarin's irrepressible spirit was questing into the unknown.

19 March

Gagarin did another circling flight, en-route check flight and flight to practice his flying technique. The flight assessments were all excellent.

In the evening he read Joseph Heller's *Catch-22* which made him laugh a lot. He wrote:

"A splendid novel. The boys must read it. They really

must. What have we got? Gennady Semenikhin has finished his novel *Astronauts Live on Earth*. It would be good as a stage play."

20 March

In the morning Yuri looked through his post, signed a number of documents, and discussed some urgent matters.

Before the flight he made another careful study of the exercises which he would have to perform in the two-seat fighter UTI-MIG-15 number 19. He entered the zone at 13 hours 36 minutes. The flight which lasted thirty minutes became a further step towards flying solo.

While awaiting the next flight, he went up to Lieutenant-Colonel Georgy Grishin.

"How are things, Commissar?" He smiled his special smile. "You've got some splendid visual material in the flying area, but you keep saying you haven't any good artists."

"We always take the very best for the flight area, Yuri."

"So I see. Well done! Flights are our most important work."

Gagarin walked slowly along looking at the slogans, posters, wall newspapers and photographs which all reflected vividly the combat training of the unit's personnel. He kept stopping to read carefully, then moving on if he had no comments. Towards the end he said:

"But you know what, Georgy? You've made no mention of the fine work of Senior Lieutenant Reut. And he's possibly the best in the regiment!"

"You're right, Yuri," Lieutenant-Colonel Grishin agreed.

The next flight that day was not until after four o'clock in the afternoon. He had flown two hours altogether and was pleased. Things were going well.

21 March

At 10.00 Colonel Vladimir Seregin and Lieutenant-Colonel Yevgeny Cherkassov arrived at Yuri's office. They discussed the development plan for Zvezdny Gorodok, covering all the details of their forthcoming conversation

with General Komarovsky on the improvement of Zvezdny. They set off for Moscow together in the same car.

They had to wait for a while in General Komarovsky's waiting room. The general's secretary, Galina Koroleva, handed Gagarin a photograph of him.

"Please sign it for my daughter Natasha. It's her birthday soon, and this will be her best present."

Gagarin took out his pen, thought for a moment, then wrote a birthday greeting to Natasha on the photograph.

"What shall I date it?"

Delighted with the unexpected gift for her daughter, the secretary replied without thinking:

"It doesn't matter. What you like."

"When is her birthday?"

"The first of April."

Gagarin dated it 1 April, 1968.

General Komarovsky listened attentively to Gagarin and promised to help.

When they came out of the general's office, Yuri met Lieutenant-Colonel Cherkassov. He liked this energetic officer who devoted so much effort to the building of Zvezdny Gorodok, the construction of training pavilions, laboratories and living accommodation. The post of deputy head of logistics was no easy one, the range of duties involved was infinite, but Cherkassov was indefatigable, he liked his work. Cherkassov saw that Gagarin was very pleased with the meeting with General Komarovsky. As if divining Cherkassov's train of thought, Gagarin said:

"Remember what Air Marshal Vershinin said about our town, Yevgeny? That he wanted to see Zvezdny Gorodok a town of the future!"

Air Marshal Konstantin Vershinin had played a special role in Gagarin's life. In the spring of 1960 the Commander-in-Chief of the Air Force received in his office a group of young pilots who had just been selected for training as astronauts. He left his desk, walked up to the pilots and shook hands with each of them, examining the shy, young senior lieutenants carefully. This was the first time they had attended such a meeting, the first time they had been addressed by the Commander-in-Chief.

Gagarin, Shonin, Leonov and others were very excited. Vershinin understood how they were feeling and nevertheless proceeded straightaway to the main point.

"Great and important work awaits you. But you are not the timid sort, are you? I left the infantry in 1930 to go into the Air Force. And you are leaving the Air Force to become astronauts. It is a related profession. You over there," Vershinin turned to Gagarin, "you are not afraid of flying to the stars, are you?"

"Certainly not," was the reply.

"And one of you will be the first!..."

22 March

More flying. Yuri flew with Lieutenant-Colonel Alexander Ustenko. Ustenko was an experienced pilot, who had spent many years testing aircraft and regarded Vladimir Seregin as his teacher, a fact of which he was very proud. Ustenko knew that Gagarin would soon be allowed to make a solo flight, and therefore checked his flying technique and landing with special care. Gagarin flew with great precision, performing the manoeuvres most elegantly. The flight assessment was excellent.

He took pleasure in being extremely precise. He did not try so hard for the sake of praise. He did not have the right to be average. He could only be the best.

It was sunny, and the snow was thawing. Yuri waited for the second flight of the day.

23 March

Gagarin went to see General Kamanin.

"It's a very fast pace, Yuri," the General said. He was evidently worried that Gagarin might be overworking.

"That's why we are astronauts, to put up with overwork," joked Gagarin, guessing what was on his mind.

Kamanin knew how strong-willed and determined Gagarin was. He had watched him during training and knew that Yuri always devoted himself entirely to his work. The General did not propose to try and dissuade Gagarin from flying and, consequently, from training for another space flight. If he had been Gagarin, he would never have stopped flying....

Yuri drove to the hospital and talked to the doctors about Valentina's health. Then he dropped in to see Yevgeny Karpov. Karpov was the astronauts' first commander. He had taught them and trained them for flight into outer space, without having any experience in such training or a set programme For everything was just beginning. All of them, the astronauts, scientists, doctors and commanders, were the first. And it is always more difficult being first.

This time he wanted to talk to Karpov about a special, very personal matter: how to help Valentina?

24 March

Yuri, Galya and Lena set off for the hospital. With the doctor's permission the Gagarins went for a drive round Moscow and then to Zvezdny. Valentina said she was feeling well and that the doctors had promised to discharge her soon. Yuri told her about his flying. Without realising it, he accelerated. He was driving the car fast and skilfully.

"Yuri," warned Valentina.

Yuri smiled, but immediately reduced speed. Valentina recalled that he had once ignored a red traffic light. A militiaman came up, and Yuri began to apologise.

"Rules are rules," said the quick-witted militiaman. "Drive as freely as you wish in outer space. Here on earth, you must mind the rules."

At home, in Zvezdny, Valentina was greeted by guests. Her sister had prepared a meal and was setting the table. Yuri's brother Valentin was there too. Shortly afterwards *Ogonek* correspondents Alexei Golikov and Dmitri Ukhtomsky arrived. This short interview had been arranged previously. Then Alexei Leonov appeared, bringing a set of tools and a gun case. Valentina had bought her husband a gun for his birthday, much to his delight.

"That's splendid! A six-chambered shotgun. Look out, my feathered friends. Alexei and I are going duck-shooting."

25 March

In the morning Gagarin attended Marxist-Leninist training classes. Afterwards he rang the Moscow Town

Committee of the CPSU to find out when and where he should register as a delegate of the 19th City Party Conference. He also rang General Pavel Kutakhov and asked if he might see him.

Colonel Seregin came to see Gagarin with some papers. The conversation was important and it took a great deal of time. Colonel Seregin was an unassuming, tactful, educated officer. He knew how to get on with people. At the front he had learned not merely to give orders to his subordinates, but to convince them of the need to carry out an order by his own example. Kamanin, Goreglyad, Seregin and many other commanders and political workers had influenced the development of Gagarin's character. It was from them that he learned how to give orders.

26 March

Colonel Gagarin drove into Moscow. At the Molodaya Gvardia (Young Guard) Publishers he had a meeting with the editor of the book *Psychology and Outer Space* of which he had just finished reading the proofs. Members of the staff gathered in the editor's office. Yuri congratulated them on completing work on the book.

"Change your profession to that of a writer, Yuri," someone suggested.

"Well, why not. But I'll have to do a bit of training." Then he added quite seriously: "A writer's work is extremely complicated. It is, perhaps, similar to that of an astronaut. Or even more demanding."

Thanks to the efforts of a number of journalists a collection entitled *The Year 2017* was being prepared by Novosti Press Agency. It was a book of forecasts. In his article "Stepping Stones Into the Universe" Gagarin wrote: "If progressive mankind unites its efforts, I believe that people will succeed in laying the first stepping stones into outer space and, perhaps, even reaching Mars. This joint investigation of outer space would be of great benefit to purely earthly matters also, such as influencing the climate of our planet."

Gagarin had a few minutes before his meeting with General Kutakhov. He went in to see General Kamanin.

In the Air Force Political Department he met General Chugunov and told him in detail about his plans. The general inquired after Valentina's health and wished her a speedy recovery. General Kutakhov was in his office at the appointed time. Gagarin, Seregin and Cherkassov introduced themselves to the deputy commander of the Air Force. General Kutakhov asked detailed questions about their work. From Air Force headquarters Gagarin went to the hospital.

At 15.00 he was at preliminary flight preparation. Then he returned to his office, read the post and some papers, and called in some of his colleagues for a talk. In his desk calendar made the following entries:

"27 March—flying, TV programme for Astronauts' Day at 17.00

"28 March—visit Valentina. Palace of Congresses—Maxim Gorky Centenary."

Tired, but pleased with the day's work, Yuri walked slowly home. He stopped now and then to take a deep breath of March air and pick up a handful of snow.

He spent the evening with his children and went to bed early. Tomorrow there was more flying.

27 March

At 10.00 Major Lev Vyalykh reported to Major-General Chugunov that he had handed over duty. I, who was standing nearby, took a step forward and reported that I had taken over duty. When we had left the general's office, Vyalykh wished me a quiet duty. Duties are rarely quiet, but so far this one had been relatively uneventful. The telephones rang, members of staff came and went, and there was the occasional enquiery: "How are things in there?" with a gesture towards the tightly closed doors of General Chugunov's office.

In the duty officer's book I read the notes left by my predecessor Major Vyalykh: "1. Send tickets for the Maxim Gorky Birth Centenary Meeting to Zvezdny (remind Gagarin that he is giving a speech)." Then came some more entries, usual tasks for a duty officer. The time passed quickly, one job followed by another.

Then suddenly there was a phone call: "Gagarin's

plane has disappeared on the radar screen."

It was as if time had stopped. The room and corridors were silent. No one came in or out. The silence became unbearable. I wanted to rush around and do something, anything except sitting and staring frenziedly at the telephone that had brought the tidings. The sun peeped out for an instant. Then a drop thudded on the metal cornice outside—the snow had started to thaw.

Why was there no communication with Gagarin? What had happened? The agonising hours of hope dragged on. Additional radar sets were turned on, search helicopters went up, rescue teams were formed, and one after another cars left for the aerodrome.

At 16.00 General Chugunov summoned Colonel Sushin and myself.

"Here are the personal files," he said, "biographical notes have to be written."

We could see how difficult it was for the general to speak, to answer the endless telephone calls, to pick up the personal files of Gagarin and Seregin and give instructions to Colonel Sushin and myself to prepare letters of condolence for the two men's wives and parents....

The telephone rang. Probably it would be someone asking "Is it true?" And that person would have to be answered. Yuri's smile came back to me, as if he were standing there. I picked up the receiver.

"Duty officer speaking...."

"It's Captain Kucherov here. I want to get in touch with Gagarin to tell him that I will meet him by entrance twelve at the Palace of Congresses. Hello, hello...."

What could I say to him.

"Hello...."

"I want to get in touch with Gagarin."

"Can it wait until tomorrow?"

Colonel Boris Kott came quickly into the room. He was carrying a letter from the United States. The letter announced that an American company would be willing to consider Mr. Gagarin's request if he should wish to acquire a piece of land on the moon. As the first

astronaut he would, of course, be offered preferential terms.

"Let's ring Gagarin now," Kott suggested. "He'll have a good laugh."

"No, not now...."

I averted my eyes. I could not tell the truth yet.

The colonel went away. I still had to carry out General Chugunov's instructions, but I could not concentrate, could not get used to the idea that Yuri was no more.

Gagarin requested permission from the technician, sat down in the cockpit, and did the drill on his own. At this time weather reconnaissance was being carried out. The unit commander summoned the personnel and issued final instructions for the flight. After Gagarin the trainer plane was to be flown by Andrian Nikolayev. Nikolayev saw Yuri walk towards the exit and ran up to him:

"Let me go up now, Yuri. And you a little later...."

Yuri gave another smile. But it was a cold one, without the usual brightness. Nikolayev was disturbed by this smile and the worried look which had appeared unexpectedly on his friend's face, and he repeated insistently:

"Let me go up first."

"No, I can't," said Yuri quietly, pressing his friend's hand. "I must fly. You and I are in the public eye, Andrian. Any mistake we make is inexcusable."

He smiled again, this time his usual broad smile, his eyes twinkled mischievously, and he went out.

Earlier that morning, when the bus was setting off, Gagarin remembered that he had left his pass card behind. He asked them apologetically to stop the bus. They tried to dissuade him: everyone knows you, who's going to ask for your pass card? But he was adamant: "Must do things properly." Five minutes later Gagarin came back with the pass card.

A few minutes afterwards Gagarin and Seregin took off....

Not far from the aerodrome the inhabitants of the Novoselovo state farm were beginning their working day

as usual. That morning Nikolai Shalnov, a retired school teacher greatly respected in the village, set off for his morning walk. It was quiet in the street. Shalnov heard the sound of a plane which seemed to be high up, above the clouds. The sound grew closer. It kept swelling into a heavy, powerful roar, then receding into something like the even drone of a cockchafer. Suddenly the plane seemed to roar very close. The teacher raised his head and saw a fighter zoom out of the clouds, rocking its wings slightly as if on a steep descent, and plunge towards the ground. Shalnov thought there was something wrong with the plane and it was about to crash. If only he could do something, help, stop it. But the plane went on plunging relentlessly towards the ground. For a moment it seemed to level out, lift its nose and try to climb. But then it dived over Shalnov's house and crashed into the forest with a whining roar, like a hurricane, breaking tops of the birch trees.

People who heard the explosion ran to the office of the farm's director, Ivanov.

"Send a tractor to the spot at once! Put me through to Moscow immediately. An emergency call. Lyzhnikov—get to the scene of the crash!"

Ivanov made and received several telephone calls, but as yet he himself did not know which plane had crashed or what had happened to the pilot. He was hoping they might still be in time to help him.

Helicopters flew low over the village carrying out a search. The crash area was cordoned off, photographs were taken and the debris was studied. A group of soldiers carried out excavations. Each unit, even the smallest part of the crashed plane, was placed on tarpaulin, measured and weighed.

Now all that remained was to find out exactly what had caused the crash. Was it technical failure? No. The engineers argued convincingly that the engine had been working properly and the readings on the instruments showed that all the systems had been functioning normally.

Then what was the cause?

The pilots had been unable to handle the plane? No, that was not the case. For a time the plane had lost height erratically, but then it had been brought back under control by the pilot's strong hand. Unfortunately it was already too low to avoid a crash.

So something had happened in the air. But what? A collision with a bird? Probably. A commission is examining all the evidence in order to establish the cause.

It grew cold and a sharp wind blew up. Everyone worked in concentrated silence, gathering round occasionally in a circle for a smoke. They spoke quietly and sadly about Yuri Gagarin.

Sometimes a single scene from the past comes back to you vividly in all its detail.

On 3 December, 1967, Gagarin and I met in Zvezdny. It was snowing and the streets were very quiet. Yuri walked with his hands in the pockets of his short coat.

"You know," he said suddenly, "we have so little time in this life of ours. I would love to read Tolstoy, Turgenev and Sholokhov again. They show life as it really is. Sometimes I feel very keenly that I do not read the classics enough. There's so much work to do. I want to make another space flight."

He stopped and looked around in delight. The trees were robed in snow. Gagarin's expression became concentrated. We talked about professions and people's devotion to their work.

"Being an astronaut is a profession," said Gagarin. "Perhaps not the most demanding of all, but certainly one that requires great persistence, stamina, willpower, presence of mind and courage. Plus an excellent knowledge of many sciences and the acquisition of skills based on them."

"History shows that the astronaut's profession is an ancient one," I added.

"I'm not offended. I know what you're getting at," Gagarin smiled. "You'll start trying to prove that our planet has been visited by beings from other worlds. If that were so, I would willingly concede them first place. But I am not convinced that the earth has been visited by

extra-terrestrial beings. It is probably just a dream, a fantasy. I once read a newspaper article about a cosmodrome which was said to have been discovered on earth...."

I also remembered this item. The newspapers had announced that in North-East Africa, not far from the Faiyûm Oasis, a block of stone with traces that remotely suggested rocket launchers had been discovered on a flat piece of ground. Each day the newspaper articles became more sensational. Amateur reporters searched hastily for evidence. And found it. In the Arabian sands they unearthed papyri that were said to record the day when beings from other planets had visited earth. Then they began to find pieces of metal which chemical analysis showed to be alloys previously unknown on earth. They also discovered radioactive sand.

This wave of interest in the hitherto little known oasis was explained by man's urge to overcome gravity and venture into outer space.

Then Gagarin did precisely that. And this sensation of the century, this epoch-making event, overshadowed all the archaeologists' findings.

Several years passed. The world was enriched by the knowledge of orbital flights and launchings to the Moon, Venus and Mars, and stories about the earth having been visited by beings from other planets began to appear again. "Today we know much more about outer space and are therefore bound to be more critical of such stories," concluded Gagarin.

People cannot, will not, accept the idea that Gagarin is no longer with us. There are thousands of letters from young lads asking to be enrolled for training as astronauts, particularly from Young Pioneers. Expressing their opinion, the Central Council of the All-Union Young Pioneer Organisation wrote:

"...He was our great friend. We met him at gatherings in Artek, and crowded round him in schools, and Young Pioneer clubs. To this day we still hear his voice, see his smile and gaze with him at the unconquered stars. His smile, his dream and his courage live on in each of us.

"We are millions. And each of us is ever ready to continue the flight begun by the pioneer of outer space."

One of the largest Serbian villages in Yugoslavia is now called Gagarin-Lozovik. In the French town of Villeneuf-du-Roi the central square has been named after Yuri Gagarin. The name of the world's first astronaut has also been given to an electric power station in Hungary. In Poland it has been given to the higher engineering school in Zelenya Guta, the foundation stone of which was laid by Yuri Gagarin in 1961.

Mothers call their sons after him, and there is a Yuri Gagarin street in each regional centre of the Soviet Union.

The astronaut's native town, Gzhatsk has been renamed after him.

People will never forget the great feat of the Columbus of the Universe.

Rapture in Battle

In the summer of 1974 the Soviet pilot and astronaut Major-General Georgy Beregovoi, twice awarded the title of Hero of the Soviet Union, was receiving congratulations on having been elected as a Deputy of the Supreme Soviet of the USSR.

Each time he would stand up and reply briskly:

"Thank you."

Or say solemnly:

"I serve the Soviet Union."

The discipline, efficiency and tact are from the army, in whose ranks he has served for more than thirty years now, in war and peace. And also, perhaps, from his profession, that of a test pilot and astronaut. It is a profession that pervades the soul, the mind, and the psyche. Weaknesses cost dear: carelessness means mistakes, lack of discipline means death.

No, all these fine qualities are the result of upbringing, a feeling of responsibility, a sense of purpose.

One day he was asked to talk about himself.

"Talk about myself?" he said to the audience, with an embarrassed smile. "What can I say about myself? My life is much like anyone else's. Nothing special. I went to school, fought in the war, tested aeroplanes, and now I am an astronaut."

"Well, tell us about your space flight."

"So much has been written about it already, that there is really nothing more to say."

"About your work as a test pilot, then."

"What if I tell you about the war, eh? Some of our Czechoslovak comrades are present today. I fought in the

skies above their country and took part in its liberation from the Nazis. May I?"

"Yes, as long as it is something interesting."

"Very well. Something interesting? Listen to this."

Beregovoi got up, came out from behind the table, unbuttoned his jacket, leaving his arms free to gesticulate, and stared long and thoughtfully at the floor.

"Well, then," he said finally, evidently satisfied that he had recalled the details of the episode which he was about to relate. "It happened in May 1945. I don't remember the name of the village. We had set up a temporary unpaved airfield there. Although the war was over in Europe, there was no peace as yet in Czechoslovakia. Surviving Nazi units had fled to the forests and ruins, and were attacking civilians. One day some Nazis began firing at random at our airfield helping to destroy the pilots and aircraft and put the ranway out of action.

"The Nazis would fire from under cover, and then immediately change their position. It was very hard to find them. We could not fire indiscriminately, because there were peaceful, defenceless civilians around. This created a most difficult situation: we were supposed to be at peace, but there was still fighting. So the war was not over. We received orders to find these wandering groups of bandits and destroy them. We flew out one day, then another and another—but no luck. They hid in the daytime and attacked towns and villages at night. Our Czechoslovak comrades asked us for help. We ourselves knew what had to be done, but how?

"Then one day we were sitting in the dugout, racking our brains over the map, when a group of five or six young boys arrived. They told us, in an excited, disjointed account, that they knew where the Nazis were firing from. And that their gunner and spotter was hiding in the belfry of the local church. It was just like a detective story. The boys had beaten us to it. We questioned them further and learnt that they had been observing the transportation of ammunition for many days now. They had set up patrol posts on all the roads within a radius of ten kilometres. Fancy that! The brave little devils. We took

the boys to have dinner, and sent a crew to reconnoitre the area which they had named. The boys were hungry, but too excited to eat properly: what if they had been mistaken? The reconnaissance plane returned and the pilot came running into the canteen. He looked angry. Perhaps he had not found any Nazis there.

"'Which of you named this area?' he asked the frightened boys.

"They said nothing and huddled closer together, their appetites gone completely, of course. Then suddenly one of them, a sharp-nosed lad in a brown corduroy jacket, rose and said bravely and confidently:

"'I did.'

"The pilot ran up and embraced him.

"'Good lad. You were quite right. Here's a memento for you from all of us, an aircraft compass. It's a new one. I could do with it badly myself, but I'm giving it to you. Follow the right course.'

"The boy looked at the swinging needle of the compass and could hardly believe it himself, not that he had been given the compass, but that they had been right about the Nazis' position, that the enemy had not had time to change it and would soon be destroyed.

"An hour later the Nazis had been dealt with. They did not terrorise our Czechoslovak friends any more."

"What happened to the boy?"

"I don't know."

"What was his name?"

"Zdenek!" came a shout from the sixth row. "Zdenek!"

Beregovoi smiled vaguely, not taking the suggestion seriously and thinking it was just a wild guess. Then he looked up and saw a major of the Czechoslovak People's Army standing in the audience. The short man with the tense face was looking hard at Beregovoi. The astronaut remembered seeing those dark sharp eyes somewhere before.

"What was his name?" Beregovoi asked quietly, the realisation dawning upon him.

"Zdenek Hladik, General. Major Zdenek Hladik," he added.

Beregovoi's amused smile disappeared, he buttoned up his jacket, and walked slowly down the central aisle.

"Thank you, Zdenek," the astronaut said with emotion and embraced the major.

"Thank you, General. Your air memento is still working perfectly. I check my path by your compass. I have become a pilot and am about to graduate from military academy."

Meetings! Beregovoi has had so many of them. Meetings with Young Pioneers, Communists, workers, servicemen, delegates of symposium and colloquia, participants in plenary meetings and conferences.

A kaleidoscope of meetings, thousands of faces, all different, but memorable. Many is the time that he had studied faces and eyes in the audience.

One day out of the thousands of eyes fixed on the platform in the large hall Beregovoi noticed two that were scrutinising him with unusual attention. These two searching eyes belonged to a stoutish man of about fifty wearing a black suit and military decorations.

Whenever Beregovoi sat back and was concealed by the person in front of him, the man in the audience would crane his neck. As soon as Beregovoi sat up erect again, the inquisitive stranger settled back comfortably in his seat.

Yes, this man in the audience was definitely watching him, the astronaut Georgy Beregovoi, with special interest.

Nervous tension gave way to confusion. Beregovoi did not remember how he had addressed the meeting or sat through it to the end. "Who on earth could it have been?" he thought, as he made his way to the exit. "Why was I subjected to such close scrutiny? It was more than the usual interest in an astronaut."

Above the hubbub of voices, Beregovoi heard his name: "Zhora!" That was what his friends at the front had called him. Beregovoi looked round, but saw no one he knew. The tension returned and he regained his customary alertness, when he could react instantly to what

was happening. People in front would stop and give way to the astronaut, smiling warmly at him. Beregovoi, who was used to the heavy burden of fame, also stopped and gave way.

"Zhora!" This time Beregovoi heard his name quite clearly and realised that someone was addressing him. He did not recognise the voice.

"Someone's calling you, Beregovoi," said a general, nodding to the short man in the black suit with the decorations.

Beregovoi smiled his thanks to the general and began to worm his way carefully towards the wall, trying not to obstruct the stream of people making their way towards the exit. He did not know the man and had never even seen him before. How should he react?

"My dear Zhora! How are you?" The stranger walked up to Beregovoi, stretched out his arms and embraced him.

"Hello," said Beregovoi heartily, trying to match the warmth of the other man's greeting. He assumed a friendly tone, embraced the man and slapped him on the back, straining his memory to think who it could be.

"I'm so glad to see you, Zhora!" said the stranger, stepping back. "We never thought then, in forty-one, by the walls of Moscow, that we would meet again in later life and talk about the war, did we? You used to say: "Maxim, they must have called you after the machine-gun."

"Maxim, the walls of Moscow, the Western front?" thought Beregovoi. But I was never at the Western front. And I didn't know a Maxim either!"

"Remember how we flew to Yukhnov? We were the first to discover the Nazi column...."

Beregovoi looked round: behind him participants in the meeting were gazing with unconcealed pleasure at the touching meeting of the two friends from the front.

"I remember it all, Maxim," said Beregovoi, entering into the spirit of the thing. "The bitterly cold winter, and how you covered me in battle and shared your vodka ration with me on public holidays."

"You remember?" Maxim shouted happily. "Do you really? Oh, Zhora!"

And they talked for a long time about those distant days of battle.

When the hall was empty and the last visitors had left the Club, the general whom Beregovoi knew came up to him.

"What a touching meeting, Beregovoi," he said. "So you were at the Western front too. I didn't know."

"No, I wasn't."

"You weren't? But you just said so."

"Yes, I said so. But I didn't take part in the Battle of Moscow. And I didn't know Maxim. He must have made a mistake and thought I was a friend of his at the front who looked like me. He had been waiting for this meeting for years. I could not disappoint him. Perhaps we really did meet somewhere, only not at the Western front. It could have happened, couldn't it?"

General Beregovoi has many duties. His working day is always busy, full of people and meetings. When he has a spare moment, he enjoys taking visitors round Zvezdny and telling them about the town. He does it in a clear and entertaining way.

He usually tells them a story about Neptune. This story is a most amuzing one, particularly as the hero is Beregovoi himself.

Every town has its own customs and traditions. They are linked with the occupations of inhabitants, geographical, environmental and other important factors. The astronauts' town, Zvezdny, also has its traditions. For example, astronauts returning from space flights are greeted by the whole town, and before the flight the members of the crew write in a special book kept in the memorial office of the world's first astronaut, Yuri Gagarin. And there is also the traditional Neptune Festival, a trial of strength, stamina and skill in the water.

This festival was introduced at the time when space training was just beginning. The problem arose as to how

the human organism could be adapted to cope with that strange phenomenon of outer space—weightlessness. On the scientists' recommendation astronauts took up gymnastics, weight-lifting, swimming, diving, rowing and acrobatics. The results in each event had to be extremely impressive. Of all the various exercises and types of training the astronauts showed a special preference for aquatics: swimming, diving, and so on.

"Tomorrow we've got Neptune Day," they would joke.

And they were right, too, because by a strange coincidence the astronauts' water sports competitions were held on 23 July, the day on which the Romans celebrated a festival in honour of Neptune, the god of the sea.

The festival was very popular. It was held, of course, not in the sea, but in the Zvezdny swimming pool. The "god of the sea" was invariably Yuri Gagarin. He was attired in magnificent armour and surrounded by loyal servants. At his right hand sat a mermaid in a shimmering scaly costume, Valentina Tereshkova.

Neptune would knock loudly and impatiently with his huge trident and order the next victim to jump into the water. At his command one of the astronauts would climb on to the diving board, dive into the water and stay under it as long as he was required to. He had to either lie motionless, saving up his strength and breathing evenly, or swim underwater following a compass, take off a special costume and undo some life-saving equipment.

Each astronaut was obliged to visit Neptune's kingdom and demonstrate his ability to carry out in all conditions the task he had been set. There were some most amusing incidents, of course. One day Georgy Beregovoi climbed on to the diving board. He approached the edge hesitantly and stopped. The music ceased. Neptune struck the floor with his trident and ordered him to dive into the water.

But Beregovoi did not dive, he did not even take up a sporting stance.

Neptune turned round, his eyes flashing with wrath: this was unheard-of disobedience.

"Yuri..." Beregovoi called from the tower.

"I am Neptune, the mighty god of the sea and ocean, the sole master of the depths and all the riches therein," Gagarin told his disobedient subject solemnly.

"Oh, great master," Beregovoi entreated. "Do not have me cast into the water for disobedience. For I am but a poor swimmer. I promise to pass the most difficult tests shortly and not to incur your wrath again."

Beregovoi kept his word. He learnt to swim and dive, got his class two in swimming, and soon passed all the tests in Neptune's kingdom with distinction.

Neptune Day became very popular in Zvezdny. And when the construction of a new open-air swimming pool was completed in the summer of 1973, it was called the Neptune pool. The carnival of the sea god continued to be celebrated. Now he had a splendid suite in fancy dress: two giant bodyguards, mermaids with flowing tresses, a proud and obedient sea horse and, of course, the devoted barber with his razor, shaving brush and napkin. They were preceded by mermaids bearing a shell which contained a charter for those who built this noble lake.

"Dear people of Zvezdny!" the god of the sea addresses the audience. "Many lakes have I seen—deep, broad, narrow, cold and hot. But your lake is the finest of all. Draw inspiration and good cheer from its waters. Swim, dive and sunbathe, but do not forget to pay tribute."

Major-General Georgy Beregovoi, twice Hero of the Soviet Union, gives the signal, and a barrel of live fish is rowed to Neptune. The god lifts a fish above his head, admires it, holds it for all to see, then casts it into the water. He raises his hand, and a herald appears and beats on a drum....

The people of Zvezdny are relaxing and enjoying themselves. Tomorrow will bring another hard working day. Tomorrow the questing mind of Soviet astronauts will again soar into the expances of the universe.

While he is taking visitors round the town, Georgy Beregovoi stops to greet friends and acquaintances, to reply to questions from his guests, and tell them a new fact that he had just called to mind.

Tall and impressive in his uniform, which bears the highest military decorations of his country, General Beregovoi gives a sweeping gesture that seems to embrace the town as he talks about plans for its development.

...Finally he says goodbye. Work awaits him. New governmental tasks, new flights, new journeys into space.

We Advanced into Space Swiftly

Lieutenant-General Vladimir Shatalov, a Soviet pilot and astronaut, has twice been awarded the title of Hero of the Soviet Union.

Shatalov has made three flights into outer space. Today he is in charge of the training of Soviet astronauts. But his official activities extend beyond his responsibilities as an astronaut and head of training.

There are countless meetings, interviews and enquiries of all kinds.

Shatalov got up and walked out from behind his desk, tall and impressive, with a welcoming smile.

"Journalists are persevering people, like astronauts. Overcoming the inaccessibility barrier is similar in certain ways to dealing with difficulties in outer space. You should understand and forgive us."

General Shatalov did not hurry our talk. He listened carefully to the questions, looking at me all the time. At the corners of his eyes there was a mass of tiny wrinkles, produced perhaps by tension or fatigue.

Readers would want to know all about astronaut Shatalov, the life and training of the other astronauts, and finally the Soviet-American agreement on cooperation in space.

General Shatalov spoke slowly, weighing each word, and making it possible to write everything down. He was most considerate.

He said little about himself and a lot about the people who had been his teachers and to whom he owed a great deal, at his school in Leningrad, the Air Force Special

School in Lipetsk, the Kacha flying school, and the Gagarin Academy.

The telephone rang. General Shatalov said courteously: "Excuse me" and lifted the receiver.

While he was talking, I looked round the neatly arranged office. The furniture was simple and unpretentious. There were numerous souvenirs. On a square table were several telephones and a diary.

General Shatalov put down the receiver and resumed the conversation.

"In 1957 the Soviet Union launched the world's first artificial earth satellite. That was only about twenty years ago. But in this comparatively short space of time Soviet astronautics has made some major advances."

"Can one talk about different periods in the investigation of outer space?"

"There is no strictly chronological division, but there are stages. The recently published book by the journalist Lev Kolodny entitled *The Rocket's Terrestrial Path* contains the following passage: 'The rocket does not soar into the expanses of the universe straightaway. It has to develop a high speed, that is the first stage. Then comes the second stage, when the rocket flies towards its distant goal. The same is true of astronautics. Its first stage was Tsiolkovsky's theory, its second—the enthusiasm of his students. Then came a most important stage—the Jet Propulsion Study Group, which built the first Soviet rockets, and the Gas Dynamics Laboratory, which constructed the first working Soviet liquid-propellant engines.'

"While accepting this division, I should also like to recall the important flight of test pilot Grigory Bakhchivandzhi. On 15 May, 1942, he made the first flight in the USSR on a B-1 plane designed by Victor Bolkhovitinov with a liquid-propellant rocket engine.

"We advanced into space swiftly, but also carefully, according to plan. Remember the launching of the first Soviet space rocket, the artificial planet Mechta, in 1959. Then came the flight to the moon with the USSR pennant and, finally, that triumph of human ingenuity, Yuri Gagarin's flight into outer space."

"How dangerous are space flights, General?"

"There was a time when the train was called a fire-breathing dragon and people were afraid to travel on the railroad. But now they think nothing of travelling by aeroplane. And it will not be long before they give preference to space transport. But everything new is difficult at first because it is an unknown quantity.

"The discovery, conquest and opening up of outer space have claimed human lives. It is always more difficult for those who are first. The unforeseen happened with the crew of Soyuz-11. After carrying out the whole flight programme successfully, Georgy Dobrovolsky, Vladislav Volkov and Victor Patsayev lost their lives on the return journey to earth. And the brave American astronauts Virgil Grissom, Edward White, and Roger Chaffee died in a fire at Cape Kennedy.

"Nature always exacts harsh toll from the first explorers."

"Could we look ahead now, General, to the flights of the future? What will they be like?"

"Each flight and the preparations for it always involve many unknown factors. You can't provide for all contingencies.

"Our astronauts are working hard in preparation for new flights. Alexei Leonov, Anatoly Filipchenko, Nikolai Rukavishnikov, Valery Kubasov, and others are in good form. But manned flights are only a part of our space programme.

"We attach great importance to automatic vehicles in the study of the celestial bodies of the solar system. They have paved the way for man, and will continue to do so, although they are not capable of replacing man entirely, of course.

"At the present stage we are proceeding with the study of near space. We were the first to begin a profound investigation of it. I am sure that very soon we shall have transport spacecraft and long-term complex orbital stations here with excellent living and working conditions for a whole scientific team on board."

"So the moon, or rather, sending people to the moon,

is of secondary importance?"

"No, that is not the case. We believe that essential information about the earth's natural satellite, the character of its soil, geography and relief, can be obtained with the help of automatic stations which are already coping successfully with their task on the moon, and on Mars and Venus. The solution of the lunar problem will help mankind to understand the history of the formation of the earth and other planets of the solar system and to establish the causes of the emergence of life. Study of the moon will be an important milestone in the development of space research."

General Shatalov stood up, walked over to the large sun-lit window which covered one wall, and looked for a long time at the clear blue sky, as he must have done hundreds of times as a military pilot waiting for the sortie command.

Then he turned round suddenly and asked:

"You're waiting for something sensational, aren't you? Space flights aren't sensational any more. They are taken for granted. In 1957 the 'beep-beep' aroused so much excitement and admiration that songs and poems were written about the first satellite. The Venus launching was far more complex than the launching of the first artificial satellite, but fewer songs, and probably poems too, were written about it. We should now expect sensational reports from the scientists analysing the results of the many flights. Outer space must yield up its secrets now...."

"A great deal is being said and written these days about international cooperation in space research, General. How broad will this cooperation be in the near future?"

"These questions are not really within my competence, but I shall try to answer them. You are, of course, aware of the cooperation of the USSR with the socialist countries in the field of space research, which resulted in the launching of the Intercosmos artificial earth satellites and the Vertical geophysical rockets.

"We also have good contacts in this sphere with

France. The press has reported on the visits to the United States of Soviet astronauts Georgy Beregovoi, Konstantin Feoktistov, Vitaly Sevastyanov and others.

"The Americans gave their guests a warm reception. Interest in the Soviet astronauts was so great that, according to one American journalist, the Russians melted the cold hearts of the Yankees. I was also a guest of the American astronauts.

"A good, friendly, working relationship was immediately established with our American colleagues. One remembers in particular the meetings with astronaut Donald Slayton, who is in charge of the training of American astronauts, and Thomas Stafford, an exceptionally modest man and an excellent test pilot, who has made four space flights.

"We also received the American astronauts here.

"In July 1974 they paid us return visits. The crews and technical personnel of the American side of the joint flight came to Zvezdny. The programme for our American colleagues' stay in our country included an intensive study of the Soyuz spaceship and meetings with the technical management of the Soviet side of the joint project.

"At the beginning the two-year period of joint preparation seemed excessively long—we wanted to get on with the flight more quickly. But we soon realised that very many questions were still unclear, concerning flight documentation, terminology, language, the sequence of operations during docking, and so on.

"The young American astronaut Jack Lousma was delighted with his stay in the Soviet Union and expressed the hope that the joint flight which was to take place in 1975 would help to 'dock' the hearts of the peoples of the two countries for the sake of peace on earth.

"When there was any free time we tried to show our guests something interesting. They visited Moscow theatres and museums and went to Leningrad and other towns to see places of historical interest.

"One evening in Zvezdny we heard an amusing story about Georgy Beregovoi in Houston. I cannot vouch for

its authenticity, but this is what is supposed to have happened.

"The American astronauts Frank Borman and Neil Armstrong, Beregovoi's guides, were trying to show him America as it really was. Towns, people and airfields rushed past with astronomical speed and fantastic variety. There was no end to the hosts' humour and entertainment.

"'Oh, Mr. Beregovoi,' said Neil, the first astronaut to set foot on the moon, examining Beregovoi. 'You're as sporting as an American.'

"'And you, Neil,' Beregovoi replied in the same tone, 'are as open-hearted as a Russian.'

"At the space centre in Houston Beregovoi was shown over the American manned spacecraft Apollo. As he settled down in the commander's seat, Beregovoi noticed the mischievous smiles of his guides, who left the cabin hurriedly, and realised that they were preparing a surprise for him. He concentrated hard, trying to guess what sort of trick his good-natured guides were about to play on him. They were already sealing the hatch.

"'Hello, sir!' came over the loudspeaker. It was Neil Armstrong speaking. 'You can make a solo flight now.'

"'I can just imagine what a good laugh they are having,' thought Beregovoi. 'But two can play at this.' And he joined in the game.

"'Hello, commander of number seventeen requests a countdown,' he replied to Armstrong in English.

"Not a sound came over the loudspeakers in reply to his request. The silence dragged on. Sensing his hosts' confusion, Beregovoi said into the microphone:

"'Number seventeen requests launching, sir. The crew is ready to fly the route Earth-Mars-Earth. Provided the ship is up to it, of course.'

"'Hello, George. We disconnected, because someone was talking over the loudspeaker in a voice just like yours. Someone was speaking English and imitating your voice.'

"'You weren't mistaken, Neil,' Beregovoi smiled. 'It was me.'

"'Oh, George! Hello, the joke didn't work, let's call it

off. Come back to earth, please.'

"'No, Neil. The flight has just started, and I want to take another look at our old planet.'

"'But how will you take off?'

"'I'll manage.'

"'Yes, yes, of course. I had misjudged your character.' And he immediately gave the command: 'Countdown.... One minute to go.... Take-off!'

"Neil was delighted with his quick-wittedness and the opportunity to continue this amusing game.

"For twenty-five minutes Beregovoi made a play of handling all the controls of the Apollo spaceship. He carried out a 'space flight' and 'landed' the ship in the prescribed area. Everything was just as on a real flight.

"They gave Beregovoi some flowers when he came out of the ship, just as we do in Zvezdny. Borman and Armstrong were amazed and delighted at the brilliant 'flight' results.

"'George,' said Armstrong, delighted, 'we did not dream that you knew our ship. Bravo!'

"Beregovoi smiled.

"'An astronaut has to know everything. I once flew Kingcobra fighters. So I studied English and the principles of flying American aircraft. That was during the war.'

"'Do forgive us,' said the American astronaut Neil Armstrong, embarrassedly, indicating the astronauts present.

"'What for? You've helped me to brush up my knowledge. Now if anything happens in orbit I shall be able to give you some professional assistance.'

"The question of cooperation with the United States arose a long time ago, one might say, with the first flight into space. It became clear then that space research was a matter for all mankind.

"Extended flights to the planets of the solar system, which require enormous material resources and scientific achievements, are possible only if a number of countries combine their efforts.

"There is already a lively exchange of 'space news'.

between the USSR and the United States. For example, the lunar soil obtained by Luna-16 and Luna-20 stations is being studied in scientific centres in the USA. Rock samples brought to earth by Apollo crews are being analysed by Soviet scientists. Observations made by Mars-2 and Mars-3 are being studied together with information supplied by Mariners. Scientific information obtained from Soviet Meteor satellites is sent to Washington and information from American meteorological satellites to the Soviet Union.

"We have already saved many millions of rubles by using information from meteorological satellites. From outer space we are prospecting for minerals, studying the seas and oceans, and investigating questions of preventing soil erosion. Astronautics has increased considerably the availability of all types of scientific information. Just think, in ten days a geophysical satellite supplies as much information about the earth's magnetic field as would normally be obtained in ten years."

"What else does astronautics do?"

"We can beam a television broadcast to any point on earth and put through telephone calls directly to all towns and inhabited localities on earth without an exchange. There is now a special service for forecasting natural disasters and one for navigation. It is now possible to make a cartographical study of all parts of the planet.

"This is all thanks to astronautics.

"Astronautics opens up limitless prospects. Many scientists are seriously discussing the question of putting a gigantic mirror reflector into orbit, a kind of artificial sun. And some scientists are already thinking about building atomic power stations in space and extracting valuable raw materials from other planets. You call it science fiction? Astronautics was born of science fiction."

Shatalov is a fascinating person to talk to. He is extremely well-read not only on a purely professional level. His comments on books, films and the fine arts are brief and to the point. Brevity is a characteristic feature of astronauts. He evidently believes the principle "time is precious, so don't waste it".

Shatalov has to travel a great deal. He went to the United States to prepare for the joint space project in 1975, to Cuba as Chairman of the Soviet-Cuban Friendship Society, and to Yugoslavia as a Deputy of the Supreme Soviet of the USSR with a Soviet parliamentary delegation.

But what he would really love to do is stroll round his native country taking a close-up look at what he has seen from the heights of space.

"To go to the heart of Russia and walk around in peace and solitude," he says longingly.

Shatalov's life is an interesting subject for journalists. His quick professional rise is no accident. He became an astronaut in 1963, and replaced General Kamanin as head of the Soviet astronautic training programme in 1971. He has made three difficult test flights into space. His life is one of hard, purposeful work.

Invested with the trust of the Party and the Government, he devotes himself entirely to the noble cause of space research.

Ever Onward

July 1975 is famous in the history of astronautics. July is the very height of summer, a month of holiday-making and film festivals. But this July brought a space Odyssey, the first ever docking in outer space of two spaceships belonging to different states.

People sat glued to their television sets. They saw North America, Kazakhstan, the capitals of the two great states, and then—the planet Earth. It is a small planet and not yet as well tended or as beautiful as it should be, but it is, in all probability, the only one of its kind in this galaxy.

On 15 July at 4.00 p.m. radio and television stations all over the world broadcast the following TASS report: "...The Soviet Union has launched the Soyuz 19 spaceship.... This flight marks the beginning of the first important joint scientific experiment under the Apollo-Soyuz programme which is being carried out by the USSR and the USA...."

The day that people had been dreaming of had arrived at last!

Remember Konstantin Tsiolkovsky's words: "...Mankind will not remain forever on the Earth, but in pursuit of light and space will at first advance timidly beyond the limits of the atmosphere, and then conquer the whole of near-solar space." This was the dream of Jules Verne and Alexei Tolstoy, H. G. Wells and Alexander Kazantsev, Antoine de Saint-Exupéry and Ivan Yefremov.

Fridrikh Tsander, Martin Caidin, Sergei Korolev, Hermann Oberth, Robert Goddard, Anatoly Blagonravov, Robert Esnault-Peltrie, Alla Manevich and Vladimir Ar-

temov laid the practical foundations for international cooperation in the exploration of outer space.

In 1957 joint ground optical observations of satellites by scientists of the socialist countries were organised, together with upper-atmosphere research based on their results. In 1967 the Intercosmos programme involving the participation of nine socialist states was initiated. Under the programme thirteen satellites, two Vertical geophysical rockets, and a considerable number of meteorological rockets have been launched, and a series of complex experiments carried out.

In 1971 the international organisation Intersputnik was set up. Member countries make use on their own territory of stations for the reception and transmission via Molnia communication satellites of telephone and telegraph messages and television programmes. Such stations have already been built in Mongolia, Cuba, Poland and Czechoslovakia and are under construction in a number of other socialist states. The first Indian earth satellite was launched by a Soviet carrier on 19 April, 1975. It was designed and manufactured by Indian specialists with Soviet advice and technological assistance.

Joint space projects are being carried out with French scientists.

The people who created spaceships considered the questions of how to put them up into space and how to get them down again.

In increasing automobile production, mankind has built new roads, camping sites, motels and hospitals.

What was to be done about the ever increasing number of space launchings? How could the safety of the pioneers of the universe be ensured?

At first the USSR and USA approached the same goal by different paths.

Then in 1967 the USSR accomplished the automatic docking of two spaceships in orbit. Before an astronaut was sent to take part in such an experiment, the docking was repeated. The recent accidents in near space were fresh in people's minds.

On 19 March, 1965, 26 hours and 2 minutes after

launching, the Voskhod-2 developed a technical fault on its eighteenth orbit. The calm, but tense voice of the commander Pavel Belayev reported the trouble to ground: "The retro-rocket has not fired."

The jubilation vanished. All present gazed stunned at the loudspeaker that had brought the news: they knew full well what might happen now.

"Go over to manual control, Pavel." It was the voice of Yuri Gagarin.

Belayev took over control and flew the spaceship back to earth.

In March 1966 the American astronauts Neil Armstrong and David Scott made an emergency landing in the Pacific Ocean when the controls of the spaceship Gemini-8 failed.

In April 1970 a number of serious technical faults developed on the Apollo-13 spaceship on its way to the moon, which almost ended fatally for the astronauts. The flight to the moon had to be postponed.

Technical faults continued.

On the day of Yuri Gagarin's historic flight the Central Committee of the CPSU, the Presidium of the Supreme Soviet of the USSR and the Soviet Government approved an address, in which it was emphasised that: "We regard the advances in space exploration as an achievement not only of our people but of the whole of mankind. We gladly put them at the disposal of all peoples, in the name of the progress, happiness and well-being of all people on earth."

The idea of possible help from the Soviet Union occurred to Dr. Glynn Lunney during the most critical moment of the Apollo-13 flight. The oxygen tanks exploded on board the spaceship when it was hundreds of thousands of miles from earth. But even at such critical moment the idea of such help had to be abandoned. At that time it was impossible, because both countries designed and built spaceships and docking devices according to different systems.

In the United States Dr. Glynn Lunney is called the "god-father" of the Apollo programme. He has been

engaged in space exploration for sixteen years.

In spite of the difficulties the idea of broader space cooperation became the subject of international agreements. The leading space powers, the USSR and the USA, agreed to carry out the world's first experiment in docking spaceships of different types. The Apollo-Soyuz Test Project began to take shape.

The crews for this historic flight were chosen.

The first two crews were the already famous astronauts Alexei Leonov and Valery Kubasov and Anatoly Filipchenko and Nikolai Rukavishnikov. The third and fourth crews were "newcomers" to outer space Yuri Romanenko and Anatoly Ivanchenkov and Vladimir Dzhanibekov and Boris Andreyev.

Alexei Leonov impressed everybody by his capacity for work, his unfailing interest in his profession, his creative approach, Gagarin-like optimism, and youthful courage. And also by his persistence and patience. Later, when he was to meet and become friends with Thomas Stafford, Alexei found a certain similarity in their lives.

Alexei Leonov became an astronaut in 1960. He was in the first group of astronauts, which later became known as the Gagarin group.

Rigorous training began.

The launchings followed one after another, but Leonov went on training. He did not feel slighted: all his comrades were worthy colleagues and all had the right to go up.

"Waiting is part of our profession," Leonov was to say later.

So he waited and trained, waited and trained.

Then one day (it was in 1963) Academician Korolev finally said to him:

"You're next. It's a difficult programme."

Pavel Belayev, an experienced and reliable man, was appointed commander of the Voskhod-2. Leonov was second pilot. Describing the new crew, Korolev said:

"With regard to the commander of the spaceship ... he is a very calm, leisurely person ... but very thorough. He is no master of long and eloquent speeches, but neverthe-

less he does everything very ... soundly."

The flight was to confirm the accuracy of his description of the crew's psychological and practical characteristics.

Korolev had a particularly high opinion of Alexei Leonov. The academician was a man of remarkable self-control, usually concentrated and severe, but at the sight of Leonov he would soften and say:

"In my opinion Leonov's main trait is liveliness of mind. That is the first thing. The second is his good technical knowledge, and the third his fine character. He is an artist, he paints pictures himself, and he is also a very sociable and, to my mind, good-natured and likeable person. He is a bold pilot and can handle modern jet fighters with great technical proficiency. I believe this man deserves the highest trust."

Korolev went into all the details of the crew's training, and gave them instruction and advice.

He told the crew:

"The flight training is proceeding normally. There were some hitches, but they have been put right. The flight and the experiment in walking out of the spaceship are complicated. We want you to carry out the programme down to the last detail.... You yourselves will have to take all the circumstances into account and make your own decisions. It is impossible to foresee everything on the ground. I repeat, and we have talked about this many times during training, you will have to act as circumstances dictate. You will get advice from ground, of course. But on the spaceship your lives and the fate of the experiment will be in your hands....

"If you notice any hitches, and there may be some, of course, don't ignore them. Understand?" the designer said strictly. "We don't want any record-breaking, we want a serious scientific experiment. Do you realise how much we expect from it? What we are undertaking tomorrow will open up a whole new line of space research."

During their training for the Voskhod-2 flight, the astronauts assisted in the design of a full-pressure suit, and an air-lock chamber, and air-lock control system and

all the additional systems and equipment which the first spaceship of this type did not have. The astronauts took part in the testing of the new kit and equipment and made suggestions as to how they might be improved. All their suggestions were accepted.

The great care and precautions that were taken in preparing for the flight bore fruit.

After walking out into space, Leonov took the cover off his cinecamera and fingered it for a while, wondering what to do with it. It was no great loss, so he tossed it in the direction of the earth on the off-chance that it might make the journey home.

Then he pushed off from the spaceship and swam along in space. The spaceship commander, Pavel Belayev, who was watching Leonov, announced to the whole world:

"A man has walked out into space."

When the time came to return to earth, the automatic orientation and landing equipment developed a fault. This was put right.

A new surprise awaited them on earth. The spaceship landed between two enormous fir trees in deep snow. When the snow gave way, the spaceship became wedged dangerously between the two trees.

Leonov had talked about the flight many times, but he has never mentioned these two incidents. As an artist, he always speaks of the beauty of space.

"When I opened the outer cover of the Voskhod-2 air lock I saw before me the vastness of the cosmos with all its indescribable beauty. The earth glided past majestically. It looked flat, and only the curving at the edges suggested that it was actually a sphere. In spite of the fairly strong light filter on my pressure helmet I could see clouds, the smooth surface of the Black Sea, the coastline, the Caucasus Range, and the Bay of Novorossiisk. After emerging from the air lock and pushing off lightly I became separated from the spaceship. The line by which I was attached to the space vehicle and linked with the commander was stretched out to full length.... The spaceship rushing over the earth was illumined by the

rays of the sun. There were no sharp contrasts of light and shade, because those parts of the spaceship that were in the shade were illumined fairly well by the sun's rays reflected from the earth. Forests, rivers and mountains flowed majestically past.

"It was the same sort of feeling that one has on a plane at a high altitude. But because of the considerable distance it was impossible to pick out towns and details of the relief, and this created the impression that one was flying over an enormous, colourful map."

In January 1966 Sergei Korolev died in hospital during an operation.

It was an unexpected and irreplaceable loss. He had been such a tower of strength, inspiration and moral support.

This is how he assessed the Voskhod-2 flight:

"Yuri Gagarin's flight opened up the age of space navigation. But the age of man's work in free space began last year, in 1965, on the day in March when Alexei Leonov walked out of the air lock into open space and swam off freely in it."

On reading Leonov's account of the flight in the press, Korolev picked out the following passage:

"...During the flight our attention was attracted by an object bathed in sunlight. Pavel and I shouted with surprise and delight. An artificial earth satellite was 'swimming along' about a kilometre from the spacecraft. We were very moved by this encounter and reflected that the time would come when meetings in space with other emissaries from earth were quite commonplace. Spaceships would meet again many times on the paths of space."

On meeting Leonov he said to him:

"I know what you are after. It's a fact that we shall meet with the emissaries of other countries in space."

Leonov blushed and said defensively, as if guilty of being too premature:

"I wrote it instinctively. Incidentally, I was developing your ideas."

"My ideas? Do I really have ideas?"

"While I was in space you told journalists that one had to reckon with the fact that a situation might arise when one spaceship would have to help another. But how? Spaceships are highly protected constructions in respect of heat and stability. Consequently one could get close to a spaceship but not actually do anything, because if it were simply depressurised through the access hatch, the people inside would perish. So one would have to develop a system of air lock, life support and egress from the spaceship that would make it possible to render such assistance..."

Korolev listened to him carefully, then said with a laugh:

"That's quite true. I did say so. I borrowed the idea from Valery Bryusov. He wrote about it as far back as 1912. Let me remember. The only poet I can recite straight off is Yesenin. Ah, that's it:

But there's a dream more precious and more bright
To which I cling as in my earlier days.
Far from us in the azure summer night
A star so crimson seems to call and blaze....
Mars, distant, dear, old friend! Our brother!
Our scarlet twin!
Are we to be apart forever!
...I wait for Marconi's instrument to send
Earth's greetings to a world both dear and strange.
I wait the shining globe at last to see,
A tiny dot lost in the twinkling lights,
To another earth along a set path speeding,
To recreate brotherhood in worlds set apart.

"And I borrow ideas from you," said Leonov. It was his last meeting with Academician Korolev.

Many months later, the journalists were to write:

"The hours that passed before Voskhod-2 landed left their mark. The hair on Korolev's temples seemed to grow greyer, the wrinkles round his eyes more numerous, and the folds by his mouth deeper."

Misfortunes never come singly.

One of Leonov's closest friends, Vladimir Komarov, met a tragic end. This was the first fatal accident in space, and therefore the bitterest.

Leonov knew perfectly well that space exploration was a new and difficult business, full of risk, and that there was bound to be some loss of human life, but he could not get used to the idea.

Vladimir Komarov was buried on Red Square by the Kremlin Wall just before the May Day celebrations. The capital was already in festive attire, bright with red calico and the spring sun, when suddenly black crepe appeared.

Yuri Gagarin did his best to keep people's spirits up, helped Komarov's wife and children, and kept a strong grip on himself, not giving way to his feelings.

That day he said: "We vow to you that we will teach the Soyuz to fly...."

And so they did. Soyuz spaceships soared off into the expanses of the universe, to the glory of Soviet science.

A new flight programme was drawn up, and Alexei Leonov was included in the complex stage of training. Yuri Gagarin was there constantly. He was trying to get permission for a second flight and was working with tireless enthusiasm.

Everyone was waiting impatiently for spring. There would be new flights and new plans, but no one knew that it would also bring a new loss.

On 27 March, 1968 Yuri Gagarin crashed to death during a training flight.

The unexpected news stunned Leonov, but after a few minutes it roused him to great activity. He insisted that they should listen to radio messages just in case the plane had made a forced landing. Vladimir Seregin, instructor-pilot, unit commander and Hero of the Soviet Union was in the second cabin. Two such aces! It couldn't be true.

Then Leonov asked permission to make a search flight and parachute to their aid if necessary.

Recently, when Valentina Gagarina was in hospital, Gagarin had often visited the Leonovs and trained together with Alexei. It was so hard to believe that he was no more!

"I close my eyes," Leonov said, "and Yuri's face is before me. It is a very mobile face. The slightest shades of mood are reflected in it and change quickly, as in every passionate-natured person...."

It was hard to work during those days. There was a canvas on his easel at home. Leonov would take up the brush and palette, and stare vacantly at the canvas.

He had painted many fine pictures dealing with the astronaut's difficult profession. They were executed in major tones, each canvas radiating faith in man's victory over the blind forces of nature....

His pictures had been exhibited in Moscow, Orel, Simferopol, Bratislava, Prague, Ottava and Helsinki. He was written about as an acknowledged artist, and publishers were glad to put out albums of his paintings. But what did all that matter, if Yuri was no more....

His thoughts wandered. For some reason he recalled his visit to France. At the Soviet Embassy he had been told that the wife of Antoine de Saint-Exupéry wished to meet him. The obstinate and eccentric Consuelo, who always avoided pilots, was requesting an audience with a pilot.

"Whenever suits her."

The petite, fashionably dressed woman, obviously once a great beauty, with good manners and a difficult character, said:

"I requested this meeting, Monsieur Leonov, in order to say that you remind me of Antoine."

"Thank you. I am extremely happy to have met the life companion of the great Saint-Exupéry."

"So you know Antoine, you've read him, have you? He wrote well, didn't he?"

"Saint-Exupéry is very popular in our country. His books are published in large editions. A stage version of *The Little Prince* is shown in many towns...."

"Antoine made lots of mistakes. He once wrote badly about your country, of which he was a guest in 1935. He was very sorry afterwards. If he had known that Russians would be the first in space.... What he wrote later was quite different:

"'I am gradually beginning to understand how naive I was to believe all those cock-and-bull stories.... Never again will I marvel at the external phenomena of life.... I see from my own errors how persistently people here try to distort the Russian experience. No, this country must be sought in something else. Only then can one understand how profoundly its soil has been upturned by the Revolution....'"

"'It is very sad when people forget their friends,'" Leonov quoted.

Consuelo started up, as if she had seen a close acquaintance.

"So you remember *The Little Prince*? Yes, you are an artist, I had forgotten." Consuelo's eyes turned moist, but remembering that there were some officials present, she dismissed her thoughts with a sweet, vague smile. "It's good when artists enter aviation."

"It was aviation that made me an artist," Leonov remarked, embarrassedly. "It is also the subject of my work."

"Tell me, why do you paint? I hope you are not embarrassed by this question. I wasn't trying to find out how much your pictures fetch."

"Why do I paint? Because I want to. I am looking for a means of self-expression. The pencil and brush help me to understand man, myself included, to reveal the spiritual world of my contemporaries, to delve into their thoughts and feelings, to make man better...."

"What encouraged you to become an artist?"

"My profession!"

In December 1969 Pavel Belayev, the Voskhod-2 commander, became seriously ill. Leonov devoted all his spare time to his friend's family and to visiting him in hospital. The doctors recommended an operation. Belayev consented. He was cheerful and talkative, telling everyone they must not worry about his health and he would soon be out of hospital.

But his condition deteriorated steadily.

What could be done to help?

Leonov had a talk with one of the surgeons and asked

him about possible ways of helping Belayev. The surgeon adjusted his small spectacles and looked hard at the astronaut.

"No help is needed."

"Why not? He's ill, isn't he? Perhaps you could graft something from me?"

"Thank you. I understand perfectly, but we are men and we must face up to the truth—no help is possible. We must expect the worst. Medicine cannot do everything."

"May I go and see him?"

"Yes."

Belayev was alone in the ward. Leonov opened the door noisily, in order to waken Belayev and to sound cheerful.

"May I come in, Commander," he shouted.

Belayev turned his head, saw Leonov and smiled.

"Of course you may. The second pilot can do anything he likes."

They talked shop.

"The Americans are talking more and more openly about joint space flights...."

Belayev spoke quietly, but fairly distinctly, pondering each fact and its significance:

"Tsiolkovsky dreamed of this, remember? In his novel *Beyond Earth* he had an international crew—A Russian, an American, a Frenchman, an Englishman, a German and an Italian."

Leonov interrupted the sick man so that he did not tire himself too much.

"And remember Frank Borman saying in Zvezdny that the achievements in space of American and Soviet astronauts belonged to all peoples and extended beyond national frontiers...." Leonov went on talking in an effort to entertain Belayev, thinking all the time: "What a pity man is not perfect yet. How much this man would have done if...."

"Alexei," Belayev suddenly interrupted him. "Before Tanya comes, I want to tell you something."

"Yes, Commander," Leonov replied, bending over

Belayev and thinking it must have been telepathy.

"Alexei, I haven't long to go now. The disease is progressing, and this will probably be my last New Year...."

"Pavel!" Leonov jumped up with his customary vigour, waving his hands as if to say that he would not let his friend talk like that. "Pavel, how can you say that! Being in hospital for so long has got you down. You and I will fly again yet...." But what was the point of lying? He sighed and heard the door creak. On the threshold stood Belayev's wife, Tanya, smiling and flushed from the cold.

"Is it time for me to go?" Leonov asked.

"No, I'm probably early."

Leonov had known Tanya for a long time. Intelligent, tactful, courteous and kind, she brought warmth and joy into her own home and the homes of her friends. She was a model of feminine charm, who had brightened the family's modest officer quarters in the Soviet Far East and was just as at home in the spacious astronaut's apartment.

Tanya was Belayev's reward for his unselfish attitude towards life.

Leonov's mentor and commander, a witness of and participant in the bold experiment of walking into space, crack pilot and a warm-hearted, intelligent man, Pavel Belayev died on 10 January 1970.

"...Pavel Belayev was a man whom I sought to emulate. I learnt a great deal from him," Leonov said later.

The emotional tension of these years and Leonov's increasing official duties made it a difficult period for him. His social work also became more extensive.

It was during this period that Leonov took up writing in his search for a means of communicating his experience to others, and talking about his comrades and their work. He wrote articles for books and magazines, and also scientific papers. At the same time he continued to practice his favourite hobby—painting. Naturally, of course, most of his time was still taken up by astronautics.

"In the last two-and-a-half years," Leonov wrote, "I have not done all that much: four oil paintings, a few pastels and about fifteen other works for my private

collection, so to say. I simply haven't the time."

One day a group of pilots from Leonov's old regiment came to Zvezdny. They told him their news and talked about other men they had served with in the regiment, the ones who were remembered because fate had been particularly kind or cruel to them. But they were obviously shy.

Leonov noticed this and mentioned it.

"You're such a famous astronaut...."

"But I'm still one of you, aren't I? I'm a pilot and everything that is good in me I owe to my regiment, my friends."

"Don't be offended, Alexei, but we can't help feeling overawed. You're so famous."

The pilots asked if they could have something for the unit's museum.

"Take anything you like," Leonov said, pointing to the numerous mementoes in his home.

"Perhaps we could have some photographs...."

"Of course."

"Perhaps we could have...."

"Willingly."

Loaded with presents and "exhibits" the pilots went home.

Active preparations were already in progress for the joint experiment. The programme was being drawn up, the ballistics experts were calculating the orbit, and there were press and television interviews.

Science played the leading role in these preparations.

The orbital motion of space vehicles responds very sensitively to the influence of even the slightest deviations. For example, if the launching speed is a mere one metre per second higher than estimated, the flight altitude at the opposite point of the orbit will be about 3.5 kilometres higher than estimated. Moreover, the orbital period will be two seconds longer, with the result that after one full orbit the spaceship's position is 15 or so kilometres off the estimated position. This deviation increases in proportion to the flight time. Consequently by the time the spaceships are supposed to meet they will in fact be

very far from each other.

The docking was to take place on a circular orbit. With the agreement of Soviet and American specialists it was decided to regard the earth as a regular sphere with a radius of 6,378.16 kilometres. This was most convinient for calculations.

In an interview Alexei Leonov said:

"Recent years have been directed towards the continued study and development of space technology, and modification of the Soyuz spaceship.... I am deputy head of the Gagarin Astronaut Training Centre. This means that my job is to train astronauts, test them and recommend them for flights. In order to have the moral right to do so, one must be able to perform all this oneself, at least as well as the people one is testing. I have been an instructor of the Vostok, Voskhod and Soyuz spaceships. In the years which I have devoted to the profession of astronaut I have taken part in almost all the Soviet projects. Sad though it may be, I am now a space veteran."

In another interview (and there were many of them because public interest in the flight was growing), future crew members made the following statements:

Alexei Leonov: Our flight must be of benefit not only to the two countries, the USSR and USA, but to all who embark upon the path of outer space research. We regard the flight as the first step towards uniting the efforts of nations to study and explore space with the help of piloted spacecraft.

Valery Kubasov: In the famous space agreement between the USSR and the USA one of the main aims is the humane idea of searching for ways to render assistance to a spaceship or crew in trouble. Our flight is an international flight, because the representatives of two states are taking part in it. And one can assume that in the future international crews will become commonplace.

Alexei Leonov: On board the Soyuz spaceship is the flag of the United Nations. The United Nations has approved a number of important documents concerning law and order in space. By presenting this flag to it we

shall demonstrate yet again to the whole world that space research is a great sphere of activity for earth-dwellers and should serve only lofty human ideals.

Valery Kubasov: The United Nations is called "an instrument of peace". At the end of the flight, together with our American colleagues, we shall present the flag that has been carried over the earth by the first international crew to this authoritative organisation.

A strict schedule of training, visits to design offices and factories, and language study was drawn up for the astronauts. The crews put in eight hours at work and another eight hours at home.

One evening Leonov's wife Svetlana interrupted her husband's studies, saying gently:

"You're tired, Alexei. How about a rest now?"

Leonov smiled, stretched out his arms wearily and closed his eyes. Yes, it would be nice to go to the forest now, do a spot of hunting or fishing, and sit by a bonfire until dawn, but....

"We will go out," he said, "but not just at the moment, later, say...."

"After the flight," Svetlana finished teasingly.

The irony was not lost on Leonov.

"Perhaps before it, as well," he said.

One day Leonov came across some interesting papers.

In the Central State Military Archives of the USSR there are documents dated 1877-1878 under the general heading: "On the manufacture ... for the Government of the North-American United States of rescue rockets used in Russia...."

Apparently in 1877 the Russian Ministry of Foreign Affairs forwarded to the Russian Society for Assistance to Vessels in Distress "...A note from the North-American Chargé d'Affaires concerning his Government's desire to acquire rescue rockets used by our Society...."

In connection with the American order the Nikolayevsky factory undertook, without reducing its planned output of rockets for the needs of the Russian army and navy, to manufacture an additional 50 rescue rockets in the five remaining months of 1877, and additional

150 rockets in 1878.

Yes, history yields up its secrets with time....

Talks between Soviet and American scientists had already been going on for many months. After the long period of "cold war", which generated mistrust, suspicion and hostility, the scientific rounds had as yet produced few results.

Doubts began to appear as to the expediency of the projected "space" contacts. There were also the problems of different approaches to technological problems and incompatible training methods. The burden of the past weighed heavily, and the language barrier was hard to overcome.

By carrying out the Apollo-Soyuz Test Project, Soviet and American scientists accomplished a great moral and scientific feat.

On one of the days when it seemed as if everything that had been discussed so long and carefully might fall through, an exchange of delegations of astronauts was suggested. Konstantin Feoktistov, Georgy Beregovoi, Vladimir Shatalov, Andrian Nikolayev and Vitaly Sevastyanov visited the United States, and Frank Borman, Neil Armstrong and others came to the Soviet Union.

Each side sent as plenipotentiaries its finest citizens who were worthy of representing their country both in space and on earth. Relations began to improve.

Work on the test project now proceeded more smoothly. Meetings of the crews for the joint flight were arranged.

Would they be able to achieve psychological compatibility and mutual understanding?

The NASA men had been through a complex, multi-stage recruitment procedure. NASA held its first recruitment in 1959. It stipulated that future astronauts should be experienced military pilots, with considerable flying time on jet aircraft, who were trained engineers and possessed the special physique required for the small cabin of the Mercury spaceship.

There were 500 applicants. They all went through strict medical, psychological and technical examinations,

and each one was interviewed separately by doctors and psychiatrists. By the end of this round 110 candidates were left, but only 69 were admitted to the next stage. The number of would-be astronauts, all brave and dedicated men, diminished with astounding rapidity, and only seven of them became the United States' first astronauts. They were: M. Scott Carpenter, Gordon Cooper, Virgil Grissom, Donald Slayton, John Glenn, Walter Schirra and Alan Shepard.

The joint experiment was preceded by an extensive preparatory work, the scope of which may be seen from the following statistics.

Between May 1972 and the day of the flight there were more than 20 meetings, 11 joint tests of all kinds, 6 crew practice runs and 6 practice runs for the personnel of the flight control centres. The crews spent 700 hours, or 18 weeks, in joint practice runs. There were four visits of Soviet astronauts to the United States and four visits of American astronauts to the Soviet Union. The two sides put out more than 1,500 documents ranging from twenty to several thousand pages.

Nevertheless the danger of misunderstanding and hitches in the programme still existed.

The Director of the Johnson Space Center, Dr. Kraft, was later to say that when the Apollo-Soyuz Test Project was first set up there were serious doubts as to whether it would be a success. Differing technological principles and methods of dealing with them were just as serious obstacles as the language barrier. A job which would normally have taken ten minutes took a whole day. But with time the Americans and Russians learnt to understand and trust each other, to feel a shared responsibility for the project's success.

The Western press was full of doubts about whether the Americans, who had set off for the moon six times, would be able to meet up with two astronauts from the Soviet Union at the first attempt.

Then came the meeting of the international crew. The Americans' first crew contained two newcomers. The captain was Brigadier-General Thomas Stafford (inciden-

tally, the youngest general in the US armed forces), tall and grey-haired, with large intelligent and alert eyes under bushy brows. Stafford was forty-five and had 6,200 hours of flying time.

Stafford graduated from the Naval Academy with a B.Sc. degree. At the time when aviation was developing rapidly he decided to devote himself to the difficult and risky job of testing aircraft. At the test pilot school he realised how much the sky meant to him. He was in top physical form (he does weight-lifting, swims and plays hand ball) and had a very high professional reputation, when he learned about the recruiting programme for astronauts.

Thomas Stafford had been in space three times, written two books on astronautics, been appointed deputy head of the crew training department, and, in February 1974, made captain of the main crew for the Apollo-Soyuz Test Project, but he continued to regard himself as unlucky.

He had already decided that fate was persecuting him, but to lose heart would have meant to give up the profession of astronaut.

Stafford had been a stand-by three times in the Gemini programme, before he finally set off for space in Gemini-6 in December 1965. It was NASA's third attempt to send up the ship.

The launching had originally been scheduled for 25 October, 1965. There were 42 minutes to go before the engines started, when it transpired that the attempt to put the Agena-D rocket, with which Gemini-6 was to dock, into orbit had been unsuccessful. The carrier and spaceship were removed from the launching pad and put in the hangars.

On 12 December of the same year the first-stage engines were started, but 1.17 seconds later (before the rocket had left the launching pad) they were stopped on a signal from the malfunction detection system. This produced a situation in which the spaceship captain, Walter Schirra, was supposed to catapult. But he did not do so. His composure and presence of mind were precisely

what was required in such a difficult situation.

Gemini-6 did not leave the launching pad until 15 December.

On 17 May, 1966 Thomas Stafford was to take off in Gemini-9. The launching did not take place due to loss of communication with the target missile which had been sent up a few hours before.

Stafford continued to be beset by bad luck. The launching of Gemini-9 did not take place until 3 June. And when all seemed to be going well at last, and the spaceship piloted by Stafford was close to the docking target, it became clear that the programme could not be completed as planned: the nose fairing would not separate from the vehicle. The docking had to be abandoned.

On 26 May Thomas Stafford, John Young and Eugene Cernan made a successful flight to the moon. All operations were carried out, with the exception of a moon landing. But this flight of Stafford's also had its tense moments. On a low-altitude selenocentric orbit the astronauts imitated a lunar lift-off. At the point when landing stage separation took place the lift-off cabin began to tumble. During these crucial seconds Stafford's resourcefulness and courage helped to prevent serious trouble. He took over control and stabilised the cabin's flight.

Thomas Stafford is an optimist. His large face is almost always smiling. He laughs heartily at his colleague's jokes. Leonov impressed Stafford by his efficiency, self-control, and ability to get through a vast amount of work. Leonov is an optimist too. He painted pictures when he got tired during training. He painted a lot and, in Thomas' opinion, well. He would sketch on a sheet of paper and if his work of art suddenly disappeared, he said good-naturedly: "Never mind, they must have liked it."

He wrote books when he thought he had ideas that would interest the reader. He has written ten books in all. And he did all this easily, confidently and enthusiastically. Stafford was most attentive, solicitous and tactful in his

dealings with Leonov. The members of Stafford's crew, Vance Brand and Donald Slayton, also attentive and efficient, were constantly at his side.

Thus mutual understanding was gradually reached. The American and Russian astronauts grew to like one another and looked forward to flying together.

This delighted the supporters of international contacts, people who understood well both the scientific and the political significance of joint space research projects.

The American press became an arena of a struggle for the opinion of the ordinary American. Some papers stated that each dollar invested by the United States in space research over the last ten years was yielding four dollars today. Others reminded readers that each minute John Glenn (the first astronaut) spent in orbit cost $1,680,000! Yet others objected to the fact that each second spent on the moon cost taxpayers $30,000. But some newspapers pointed out that expenditure on space research was three times less than American expenditure on wine and spirits, half that on cigars and cigarettes, and less than that on gambling and betting.

Ahead lay the meeting in America. It was agreed that they would work from ten to twelve hours a day with only Sunday off.

The technological barrier was more easily overcome than the language barrier. For this reason it was decided that during the flight the Russians would speak English and the Americans would speak Russian.

When the programme of leisure activities was being discussed Stafford proposed a visit to his home.

Stafford had an ordinary small house with a garage. He gladly showed the guests his home and his numerous mementoes, including Moscow gifts, and introduced them to his wife Faye and his daughters. Faye welcomed the guests warmly. Soviet astronauts were frequent visitors to the house, and she enjoyed these meetings. While the meal was being prepared, a mixture of Russian and American dishes, Tom proudly showed his rare collection of guns from different countries. That evening a splendid Russian gun was added to it.

It was a strict condition that evening that everyone should use the language that they would speak during the flight: the Soviet astronauts spoke English and the Americans Russian. Alexei Leonov proposed a brief list of terms: "very okay", "time to eat" and "docking completed". Tom seconded him and proposed his own contribution to this international project: "fill the glasses", "hello, Soyuz" and "lunch break".

Valery Kubasov charmed his hosts by his brief and pithy remarks. You could tell he was a mathematician. His sentences were held together as perfectly as the welding of his spaceship.

During the meal the conversation turned to the Second World War. Everyone remembered it, particularly Donald Slayton who had fought in it. Alexei Leonov talked about Ivan Kozhedub. This fine pilot was well-known in the United States. The pride of Russia, he had also become the pride of the Allies.

Alexei Leonov also remembered the war well. He remembered the tears of the grieving women, and the eyes of the orphaned children who were evacuated from Leningrad during the blockade and from the Ukraine. He remembered the stuffy, stinking goods trucks full of the wounded and elderly.

He recalled how he had worked in the fields until he was ready to drop, harvesting the potato crop, carried hay and looked for medicinal herbs. That was his contribution to victory. He often thought that he had been born too late and that all the heroic deeds had been done. His countrymen's greatest feat, the victory over fascism, had been achieved without him, and he felt that nothing else could be so fine and heroic.

And again, when he arrived at the military flying school and read reverently through combat reports on the feats of its former cadets, when he read their letters now treasured in the museum, he remembered the war.

And, finally, when he went up for the first time in a Yak-18 and took over the fighter, feeling happy and all-powerful in the endless blue sky, and when he flew that remarkable jet plane, the Mig-15, he realised that the

sky was precious to him, that he could not live without it, that he would master it as a tribute to the victory.

The sky became his home, the theme of his creation.

...15 July, 1975 was approaching.

At this time Lev Nechayuk, a correspondent of *Krasnaya Zvezda*, wrote about Baikonur:

"Our main cosmodrome is still very 'young'. Like Komsomolsk, Magnitogorsk or Bratsk, it began with the first peg driven into the parched, grey, salty earth, with the first foundation stone of the first building, and with the first tree that survived the merciless desert.

"The modern cosmodrome is an extraordinary complex, diversified, so to say, unit covering a vast area. Here, in the middle of the desert, there has grown up a town with a large population, which contains everything a person needs and is used to having.

"And round the town many factories, buildings, and installations have sprung up, which contain the latest achievements of science, technology and industry."

Time ticked on relentlessly, tensely, like the astronaut's brain. A second was an instant, but it was also the landmark of a great historic event.

On 14 July at 15.20 the control officer at the Soviet centre, Vadim Kravets, put through a direct call to Houston and informed his American colleague John Temple that the twenty-four hour countdown had begun.

Another few hours and then the thrilling seconds: three ... two... one ... zero!

At 12.25 on 15 July, 1975 a bus drove up to the base of the rocket. The doors opened and out walked Alexei Leonov followed by Valery Kubasov.

The spaceship's commander Leonov informed the State Commission: "The crew is ready to undertake the flight."

Then the two of them, dressed in white space suits, walked up to the ladder.

12.30. They were in the lift. Another few minutes and the crew would take up their seats in the Soyuz.

15.00. The rocket was standing on the launching pad in splendid isolation. There was not a soul near it.

15.05. The fifteen munute countdown was announced.

15.12. The order came to switch on the launching key.

Now the fate of the rocket was in the hands of the automatic controls.

15.16. The astronauts pulled down their pressure helmets.

15.17. They were ordered to switch on the vent.

15.18. Two minutes to go. One-and-a-half, one....

The ambilical tower moved away. Now nothing connected the rocket with the ground.

15.20. Zero!

Covering the ground with the hot exhaust of its mighty engines, the rocket soared off into the expanses of the universe.

People all over the world checked their watches. The Kremlin clock began a countdown.

At 19 hours, 04 minutes, 47 seconds docking took place.

At 22 hours, 19 minutes, 27 seconds Alexei Leonov and Thomas Stafford shook hands for the first time in space.

At 22.24 the General Secretary of the Central Committee of the CPSU, Leonid Brezhnev, congratulated the astronauts on the great event. The greeting read, in part, as follows: "Since the launching of the first artificial earth satellite and the first manned space flight, outer space has become the arena of international cooperation."

In a message to the crews of the Soyuz and Apollo spaceships the President of the United States said:

"It's taken us many years to open this door to useful cooperation in space between our two countries, and I'm confident that the day is not far off when space flights for millions made possible by this first joint effort will be more or less commonplace."

At this time the poet Mikhail Vershinin wrote:

The times have changed!
You'll know I'm right:
The USSR and America
have made a joint flight!

The Apollo-Soyuz Test Project had been successfully

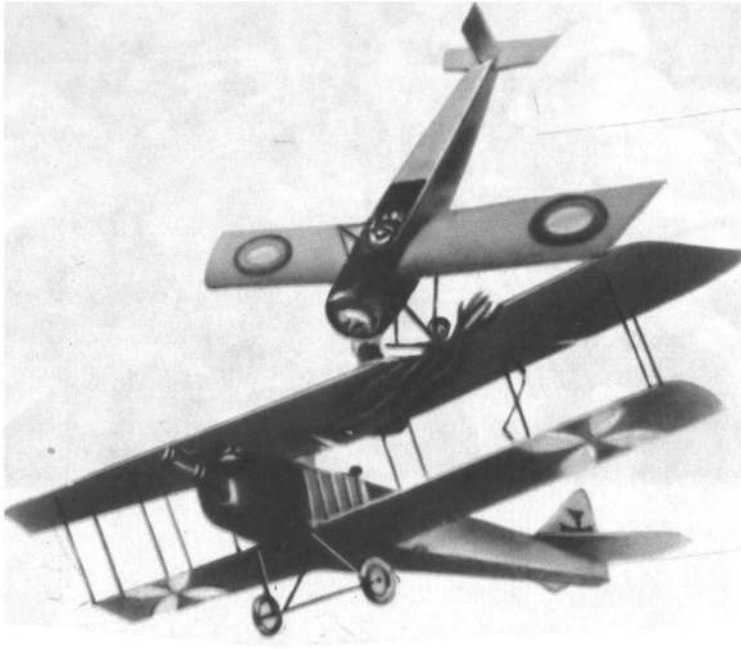
completed. The astronauts were awarded the highest honours.

Major-General Alexei Leonov, twice Hero of the Soviet Union, returned to carry out his duties as deputy head of the Astronaut Training Centre and was soon involved in a new training programme. There would be more launchings, more projects, more difficult flights, and he would have to be ready for them.

Valery Bykovsky, who has made three flights into outer space

The team of the Soyuz 22 spaceship—Valery Bykovsky (spaceship commander) and Vladimir Aksyonov (flight engineer) during preliminary training at the Gagarin Astronaut Training Centre

Pyotr Nesterov, the famous Russian military pilot who made the first aerial ram in the world



A drawing of the aerial ram

Colonel Anton Gubenko, the first Soviet pilot to make an aerial ram

The IL-16 fighter in the air

The famous Soviet pilot Valery Chkalov, a pioneer in Soviet aerobatics

Anatoly Serov, a famous test pilot and Hero of the Soviet Union

The famous test pilot Grigory Bakhchivandzhi before his flight on the BI-1 designed by Victor Bolkhovitinov

Victor Bolkhovitinov with Soviet pilots

Chief designer Victor Bolkhovitinov

A jet fighter at take-off

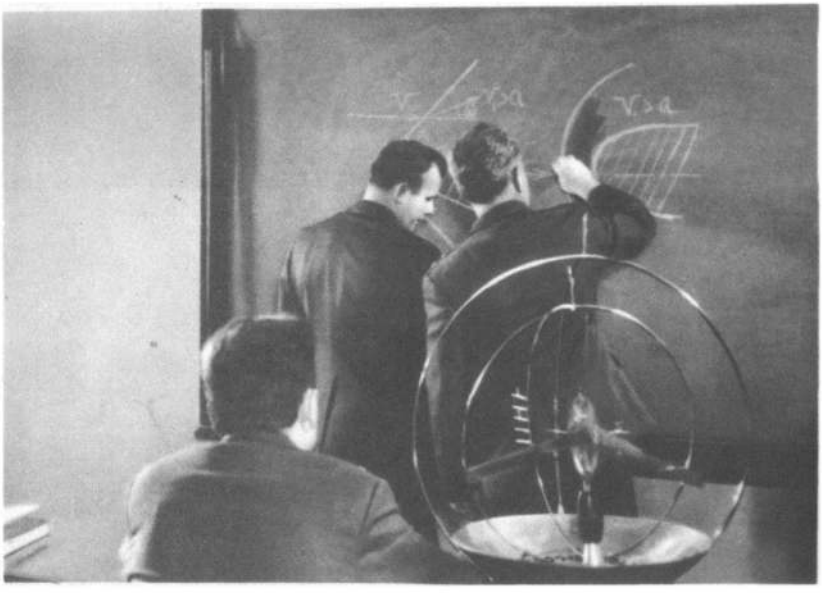
The crew

Yuri Gagarin and Sergei Korolev at a meeting

Yuri Gagarin after his space flight

Two good friends—Yuri Gagarin and Valery Bykovsky

An aerodynamics examination at the Zhukovsky Academy



Yuri Gagarin with his daughters Lena and Galya

The memory of the son is always alive

Georgy Beregovoi, twice Hero of the Soviet Union

Commander of spaceship Soyuz 14 and Hero of the Soviet Union, Colonel Pavel Popovich (left) with Lieutenant-Colonel Yuri Artyukhin, flight engineer on Soyuz 14

Andrian Nikolayev, Thomas Stafford and Vladimir Shatalov by the Gagarin monument in Zvezdny Gorodok

Officials from NASA and the Gagarin Astronaut Training Centre by the Gagarin monument in Zvezdny Gorodok

The American astronaut Frank Borman in the Zvezdny Gorodok museum.

The astronauts Boris Volynov, Alexei Leonov, Pavel Belyayev and Vladimir Komarov in Zvezdny Gorodok in 1961

Astronaut Pavel Belyayev planting the traditional tree at the Exhibition of Economic Achievement in Moscow

Request to Readers

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Viktor Mitroshenkov is generally regarded by the critics as a most successful writer. He is the author of twelve books and several film scripts, and his name frequently appears in newspapers and magazines.

Each morning the postman delivers a large bundle of letters to his apartment, containing requests for copies of his new book, expressions of gratitude, requests for his autograph and so on.

Blue Horizons, a collection of sketches about people who have devoted their lives to aviation, is one of the writer's most popular books. Himself a professional pilot, Mitroshenkov writes with deep respect and knowledge, vividly and movingly, about the life of the talented designer Viktor Bolkhovitinov who created the world's first jet aeroplane, about Anton Gubenko who performed the first aerial ram in the history of Soviet aviation and about the famous pilot Valery Chkalov who made the first non-stop flight from Moscow to the United States.

In writing about people who played an active part in the development of Soviet aviation, Viktor Mitroshenkov stresses that it is only thanks to all the labours, discoveries and exploits of the many scientists, pilots and engineers that manned spaceflight has become possible. Several sketches in the book describe interesting episodes in the life of Soviet astronauts. Mitroshenkov writes with special warmth and insight about his friend Yuri Gagarin and the events of the last month in the life of the world's first astronaut.

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